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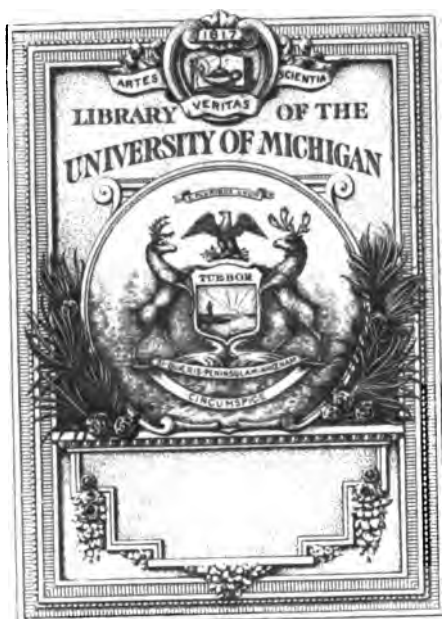
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Edited by Douglas C. McMurtrie

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Contents

- Number 1.* A bibliography of the war cripple. By Douglas C. McMurtrie.
- Number 2.* The economic consequences of physical disability; a case study of civilian cripples in New York City. By John Culbert Faries.
- Number 3.* Memorandum on provision for disabled soldiers in New Zealand. By Douglas C. McMurtrie.
- Number 4.* A statistical consideration of the number of men crippled in war and disabled in industry. By I. M. Rubinow.
- Number 5.* The French system for return to civilian life of crippled and discharged soldiers. By John L. Todd.
- Number 6.* Tourvielle; A trade school for war cripples. By Gustave Hirschfeld. Translated by Gladys Gladding Whiteside.
- Number 7.* The development in England of a state system for the care of the disabled soldier. By John Culbert Faries.
- Number 8.* Training in English technical schools for disabled soldiers. By John Culbert Faries.
- Number 9.* Placement technique in the employment work of the Red Cross Institute for Crippled and Disabled Men. By Gertrude R. Stein.
- Number 10.* The relation of the short, intensive industrial survey to the problem of soldier re-education. By G. A. Boate.
- Number 11.* The vocational school for disabled soldiers at Rouen, France. By J. Breuil. Translated by Gladys Gladding Whiteside.
- Number 12.* Provision for war cripples in Italy. By Ruth Underhill.
- Number 13.* Provision for war cripples in Germany. By Ruth Underhill.
- Number 14.* Provision for vocational re-education of disabled soldiers in France. By Gladys Gladding Whiteside.
- Number 15.* Provision for the re-education of Belgian war cripples. By Gladys Gladding Whiteside.
- Number 16.* Opportunities for the employment of disabled men. Preliminary survey of the piano, leather, rubber, paper goods, shoe, sheet metal goods, candy, drug and chemical, cigar, silk, celluloid, optical goods, and motion picture industries. Prepared under the direction of Helen E. Redding.

**Publications of the
Red Cross Institute for Crippled and Disabled Men**

Edited by Douglas C. McMurtrie

Series I

Issued January 4, 1918

Number I

A Bibliography of the War Cripple

**Compiled by
Douglas C. McMurtrie**



**The Red Cross Institute for Crippled and Disabled Men
311 Fourth Avenue New York City**

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The present bibliography comprises a list of references to literature treating of re-education, employment, and other forms of after-care for crippled soldiers and sailors. Within this special field the effort has been to make it as complete as possible. Yet there have been purposely excluded articles dealing exclusively with medical or surgical methods, with the pension system, with provision for the blind, the deaf, or the nervously deranged. These are special subjects in themselves, important without doubt, but outside the limited scope of this index.

Practically every entry has been made from the original publication. Further, practically all the literature indexed is represented either in the private library of the compiler or in the collection of the Red Cross Institute. Both of these collections are now available for consultation in the library of the Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, New York City.

Current accessions of material now being received will be covered by supplements to the present list.

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**The Economic Consequences of Physical Disability;
A Case Study of Civilian Cripples in
New York City**

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The Economic Consequences of Physical Disability; A Case Study of Civilian Cripples in New York City

War causes the plowing of many neglected fields. It would be hard to find a more neglected field for social effort than that of industrial workers who have suffered some physical handicap. The problem of the re-education of the disabled man was seen to be a very vital one when it became apparent that the participation of the United States in the great war might involve the crippling of her soldiers and sailors.

To anticipate the need of a practical knowledge of how to deal with the disabled soldier it was thought that if an experiment could be tried in the re-education of such civilian cripples as might respond to training, an institution with actual experience might be in existence before disabled soldiers should return from the battle front. Fortunately, this was recognized as a timely and practical contribution to the country's need. To start such a work Mr. Jeremiah Milbank offered the sum of \$50,000, and the use of a building at Fourth Avenue and Twenty-third Street.

It was thought that, preliminary to starting the work of an institute for the re-education of crippled and disabled men, an investigation should be made into the experiences of as many cripples in civil life as might be possible in a brief time. Mr. Milbank provided the funds for this investigation, which was carried on during the summer of 1917 under the direction of Dr. Edward T. Devine, then acting-director of the Red Cross Institute.

Its primary object was to learn what light the attempts of cripples to readjust themselves to industry after their injuries would throw upon the problem before the Institute. The cases selected for study were those of men between

the ages of sixteen and fifty-five whose injuries had occurred since January 1, 1915. The object in limiting the investigation to recently injured men was to obtain cases that would be analogous in character to those of cripples that may be expected from the battlefields of Europe. A few cases outside this range were not rejected but they proved to be of less value than the others.

I. SOURCES

The staff of investigators was recruited largely from university graduate students. Their first task was to consult the records of the principal hospitals of New York City and select for visitation such cases as appeared to involve some permanent disability. These were not always readily discoverable from the records by the layman, except in such hospitals as keep a record of amputations. Most hospitals index their cases by diagnoses, consequently some knowledge of what diseases are likely to result in an amputation or some other disability, such as paralysis or a stiff joint, was found necessary. With the cordial help of the record clerks the investigators readily learned to handle the records so that they could find most of the significant cases.

In the case of diagnoses, other than 'operation', likely to result in an industrial handicap it was necessary to read the record of the case, especially the 'discharge notes', to ascertain whether the disease had so resulted. Even the discharge notes did not generally offer conclusive evidence, for the usual comments were 'cured', 'improved', or 'unimproved'. This does not convey a very clear idea to the mind of the layman inasmuch as the comment upon the discharge of a man whose leg had been amputated would be 'cured',

if the stump had healed properly. The New York and Presbyterian Hospitals have a follow-up system whereby they endeavor to keep track of their discharged patients until their complete recovery.

The investigators were instructed to record the cases of amputation which were likely to result in an industrial handicap. Where an arm or leg was amputated there could be no question. But in the case of a hand injury the matter was not always so simple. An infected hand, for example, may require the amputation of but one finger, but remaining fingers may be left stiff and prove to be a greater bar to manual work than their loss.

Simple fractures were usually passed by, for they generally resulted in a complete cure, but some comminuted fractures were found to be followed by serious results. Operations for malunion often revealed some deep-seated trouble that militated against industrial efficiency.

In many cases very minor injuries resulted in serious handicaps because the powers of resistance had been lowered through careless or vicious habits, or because of the presence of venereal disease. A physical handicap may not be the simple result of a maiming machine, but it is often this plus the destructive action of hidden forces that arise from vicious social conditions.

One disease has both an ethnological and an industrial interest. Its ethnological interest lies in the fact that it is found almost exclusively among Jews who are immigrants, or the children of immigrants, from Poland, Galicia, and Russia. The large number of these people in New York City has brought to Mount Sinai Hospital, in particular, a considerable number of patients suffering from this disease. It often necessitates an amputation and, in many cases, a re-amputation. Nine cases of leg amputations investigated by the Institute were afflicted with this malady and probably other cases of leg amputations, which were simply recorded as due to gangrene, were due to the same cause. Two of the men had, at different times, lost both legs.

This malady has received the special attention of Dr. Leo Buerger, of Columbia University and

Mount Sinai Hospital, who calls it *Thromboangiitis obliterans*. Some 300 cases have come under his observation during the past twelve years. The causative agent has not yet been discovered.

One cannot handle the hospital records and hear the experiences of the cripples without being impressed with the fact that the kind of surgical attention a man receives conditions his return to industry. A skilful operation may hasten a man's return to active life, or a bungling job may greatly hinder it. The operation may determine whether a man's loss of industrial efficiency shall be ten per cent., or fifty per cent., or ninety per cent. In some of the cases studied an insufficient flap on a stump left the nerves unduly exposed, greatly delaying the use of the member. In others the men were left with bulging, unsightly, and inconvenient stumps. In several cases fingers not amputated have become ankylosed, practically destroying the usefulness of the hand.

The return of a member to a healthy condition is often retarded by the presence of bone splinters which cause an extended period of suppuration during which the use of an artificial limb is impossible. All of this has a bearing on the subsequent industrial history of the man, for the longer his return to active life is delayed, the greater is the danger of demoralization caused by idleness.

In the choice of suitable means to assist a man in returning to his old occupation, or finding a new one, with as little delay as possible, the Institute cannot omit close cooperation with skilful orthopedists. In several cases studied it seemed quite clear that the first thing the man needed to set him on the road to self-supporting labor was surgical attention. Sometimes a re-operation is necessary to undo, if possible, the effects of surgical carelessness or blundering. One striking case is that of a man whose leg was amputated at a well-known hospital. When the stump refused to heal he went to another hospital where it was discovered that a surgical needle had been left in the stump. Trouble had already developed in the other foot due, it is believed, to the presence of the hidden needle.

Twenty of the principal hospitals of the city were visited and 327 cases chosen for visitation. A slip was made out for each person recording his name, address, date of admission and date of discharge, age, nationality, occupation, nature of injury, and result of injury. These 327 cases were forty-four per cent. of the aggregate from all sources. Bellevue Hospital yielded the largest number, sixty-two; New York Hospital followed with twenty-seven, Mount Sinai, Kings County, and Flower with twenty-five each. The other hospitals gave smaller numbers.

Of the 327 cases selected for investigation 165, or about fifty per cent., could not be located or found. The work involved in trying to trace many of these was considerable. Six were not visited because they lived too remote; for one reason or another, twenty-seven were found not to be of interest to this investigation; 129 were visited and their stories written.

The second source of cases for investigation, and the one affording the largest number of names, was the State Industrial Commission. Their records, both in Albany and New York City, were examined and 332 cases selected. These cases were those of men who had met with accidents in the course of their employment which resulted in some disability for which they received, or were to receive, money compensation through the State Industrial Commission.

A large proportion of these cases involved accidents to the hands resulting in the amputation of one or more fingers. In a large number of instances investigation showed that the finger amputations had not resulted in serious industrial handicaps, as the men had returned to the same work at the same wages as before the injury. The question arose as to the significance of finger cases for the purposes of this investigation. But in some instances it was found that even finger cases resulted in serious handicaps either because of the number of fingers lost, the lack of apposition or strength in, or the ankylosis of, the remaining fingers. So, while the finger cases did not yield a large proportion of serious handicaps, nevertheless, they could not be omitted or ignored.

The 332 cases taken from the records of the State Industrial Commission yielded 172 case

stories; 104 could not be located or found; sixteen were without interest; forty were not visited, either because they lived too far away or because there was not time to cover them before the investigation closed.

Assimilated to the cases furnished by the State Industrial Commission are the names obtained from the Interborough Rapid Transit Company of men injured in their employ and receiving workmen's compensation. There were twenty such cases and only half of these were found. The data furnished by the Interborough Company were not so full as those taken from the records of the Industrial Commission.

In comparing the cases obtained from the two principal sources one is surprised not to find more duplicates. Only six duplicates were taken from the records of the hospitals and the State Industrial Commission. The case stories show that many hospital cases were receiving compensation, but in only six cases did the same name come from both sources.

The data obtained from the records of the State Industrial Commission revealed a man's economic condition as the hospital records did not. They gave the nature of the man's injury, his wages at the time of his accident, and the amount of compensation awarded. But while they afforded instances of traumatic amputations they would not have offered an introduction to other cases of amputation which were the result of disease or of injuries not 'arising out of and in the course of employment'. Disabilities caused by disease proved to have serious economic consequences because the acute conditions which sent the patient to the hospital were often but the culmination of previous ailments. On the whole the hospital slips represent cases of more serious economic import than the compensation ones, not only because many of these were not aided by compensation, but because of the psychological results of long-continued illness. This seems to be borne out by the fact that the number of unemployed men from 129 hospital slips is sixty-four, while that from 172 compensation slips is only forty-one, or proportionally not quite half as many. In

other words, the cases from the hospitals yielded a larger proportion of men who had not adjusted themselves to industry since their injury than compensation cases, and of course it is primarily the unemployed that constitute the problem under consideration. Because of the absence from the compensation slips of cases arising from disease it would seem that they would form a closer analogy to the cases we might expect from the battlefield than the hospital cases.

Two effects of the working of the compensation law are observable in the cases studied, the one beneficial, the other detrimental. The money received from compensation proved to be of the greatest value during the period of convalescence, but in some cases it seemed to prolong the period of idleness beyond the point at which it would have been physically possible, and perhaps beneficial, for the man to have begun work again. It was quite apparent that some men did not seek employment very earnestly until the compensation money was expended and they felt the pressure of economic necessity. The payment of compensation in a lump sum resulted favorably in some cases, as where one young man took advantage of it to pursue a course in the Y.M.C.A. auto school and fit himself to be a chauffeur, and unfavorably in others where the money was lost through ill-advised investments.

Besides the three sources already mentioned, *viz.*: twenty hospitals, the State Industrial Commission and the Interborough Rapid Transit Company, some thirty-three cases were met with incidentally by the investigators on their rounds and their stories learned. Some of them were quite interesting but, on the whole, they furnish the least valuable material for the purposes of this investigation. Those met with on the street were generally obvious cripples engaged in some kind of street trade whose injuries were of long standing and whose stories are chiefly valuable as showing the evil effects of social neglect in dealing with the handicapped. The data in these cases were generally too meager for the purposes of tabulation.

The last source of cases made use of was the records of the Employment Bureau for the Handicapped conducted by the Federation of Associations for Cripples in cooperation with the Hudson Guild. Twenty-nine cases were selected for investigation, but only eighteen could be found. In general they were difficult cases of long standing. Although efforts had been made to place these eighteen men in industry, eight were still without employment.

Other sources have been suggested from which the names of injured or handicapped men might be secured, *viz.*: the manufacturers of artificial limbs; the bureau of statistics of the police department which records street accidents involving the use of the ambulance; accident insurance companies; employees' unions which have accident funds and legal bureaus; the Legal Aid Association.

If the Institute is to address itself to the problem of the cripple in civil life it should establish relations with the hospitals whereby the name of any man suffering from an amputation or other crippling disability likely to affect his earning power should be reported to the Institute and entered upon a card index. His case should be followed by the Institute and should it appear that he needs advice or assistance in readjusting himself to industry, such help should be given him before he becomes discouraged or indifferent. This would involve other activities besides vocational education and would extend the benefit of the Institute to many who might never have occasion to enter its school.

Similarly, the cases that come before the Industrial Commission should be followed up. Many crippled men postpone any serious efforts to re-enter industry until their compensation ceases and they feel the pinch of necessity. By that time discouragement may have settled down upon them or they may have become accustomed to a dependent attitude. In either case the nerve of resolution and effort is paralyzed. The aim of the Institute should be to prevent the handicapped worker from getting into the slough of despond of economic dependence, as well as to endeavor to lift him out once he has sunk in its miry depths.

SOURCES

	<i>Case Stories</i>	<i>Not Found</i>	<i>No Inter- est</i>	<i>Not Vis- ited</i>	<i>Totals</i>
Bellevue	32	27	3		62
City	6	10	2		18
Flower	9	16			25
Fordham	4	2	1		7
German	5	6	2	1	14
Gouverneur	5	5	1	1	12
Harlem	4	8	2		14
Hudson Street	1	1			2
Kings County	6	15	4		25
Knickerbocker	3				3
Metropolitan	4	14	4		22
Mt. Sinai	11	9	5		25
New York	10	15	2		27
N. Y. Orthopedic	1	5			6
Polyclinic	8	6	1	2	17
Postgraduate	5	5			10
Presbyterian	6	5		1	12
Roosevelt	3	7		1	11
Ruptured and Crippled	3	1			4
St. Luke's	3	8			11
<i>Twenty Hospitals</i>	<i>129</i>	<i>165</i>	<i>27</i>	<i>6</i>	<i>327</i>
Industrial Commission	172	104	16	40	332
Interboro Rapid Transit Co.	9	10		1	20
Personal	33	2			35
Hudson Guild	18	11			29
<i>Totals</i>	<i>361</i>	<i>292</i>	<i>43</i>	<i>47</i>	<i>743</i>

II. METHODS OF THE INVESTIGATION

The names of cases likely to be of interest for the purposes of this investigation having been secured from the sources mentioned above, investigators were sent to the addresses given to learn from the men themselves, or from their family or friends in case they could not be seen, the story of their economic experiences as affected by their injury. To facilitate the work of the investigators the cases to be visited were located upon a map of the city by means of colored tacks. The geographical distribution could be seen at a glance and the cases to be visited selected in groups, thus saving time and car fare. The aim was not to make a complete survey of the cripples of New York City, but to get, in the time allotted, the stories of as large a number as possible whose experiences would be illuminating to the Institute. Quite

naturally the cases were located mostly in those sections of the city where the industrial workers live. The lower East Side had more than its share and they fringed the city east of Third Avenue all the way to the Bronx where they were quite numerous. Another general group was found west of Seventh Avenue from Canal to Sixty-ninth Street. Brooklyn and Queens had a goodly share of the cases, but they were more widely distributed.

The investigators were instructed to endeavor to learn the man's industrial history before and after the accident and any other facts having a bearing upon the problem of his readjustment. The plea for this very personal information was made upon the ground that it would be of service in planning the work for crippled soldiers and sailors. The response was, on the whole, ready and sympathetic. There were a few who suspected the motives of the workers and were quite reticent, and a few Germans were found who bridled at the mention of American soldiers and sailors. The poorer people were found to be more ready to answer the questions asked than the well-to-do. One of the workers remarked, "they are so used to being investigated that they take it quite as a matter of course."

After obtaining such information as was possible, either from the man himself or, if he could not be found, from his family or friends, the field worker wrote up the story of the case briefly and filed it. The 361 case stories on file form the basis for this study.

III. INDUSTRIAL READJUSTMENT

One of the aims of the investigation was to find what light the story of a cripple would throw upon the problem of industrial readjustment. Had he been re-employed in his former occupation, or had he found a new one? If still out of work, what were the obstacles to his employment? It was quite clear at the outset that the infinite variety of experiences encountered would make it impossible to classify, tabulate, and array them in such a way as to arrive at formulae for dealing with cripples in which the only variant would be the nature of the handicap. The stories of men who have succeeded in spite of handicaps, and of those who have not, are

merely suggestive of what may be attempted for others. Each case for readjustment will be a problem in itself in which a man's education, his previous industrial experience, his tastes and aptitudes, the nature of his injury and other handicaps, the conditions in industry in general, or in a particular trade, and a multitude of other factors will affect the solution.

The cases chosen for study were mostly those who had suffered an amputation, either by accident or as the result of disease, or who had lost the use of a member. As the loss of a hand or arm has a different import in industry from the loss of a foot or leg it will be useful to divide injuries into those to the upper limbs, and those to the lower.

Upper limb injuries may be subdivided into those to fingers, hands, and arms. This classification is not close or accurate, for the function of the hand is abridged by the loss of any finger. Similarly with the foot. But, in general, when a case is put in the class of finger injuries it indicates that the disability was not such as to entirely destroy the use of the hand. Cases classified as hand injuries usually involve extensive injury to the hand, or its amputation. The same may be said of the foot and toes.

TABLE I.

	Cases	Em- ployed	Unem- ployed	Ampu- tations	Arti- ficial Limb
Upper limb injuries					
Fingers	158	133	25	all	
Hands	36	23	13	9	2
Arms	32	17	15	18	7
<i>Totals</i>	<i>226</i>	<i>173</i>	<i>53</i>	<i>27</i>	<i>9</i>
Lower limb injuries					
Toes	11	9	2	all	
Feet	24	9	15	14	5
Legs	92	35	57	65	38
<i>Totals</i>	<i>127</i>	<i>53</i>	<i>74</i>	<i>79</i>	<i>43</i>
Miscellaneous	8	3	5		
<i>Grand Totals</i>	<i>361</i>	<i>229</i>	<i>132</i>	<i>106</i>	<i>52</i>

Table I classifies, according to the member affected, the 361 cases whose stories were secured. The largest proportion of finger cases came from the records of the State Industrial Commission and were the results of machine accidents.

Of the 158 finger cases, practically all of which involved amputations, sixty men (thirty-eight per cent.) were re-employed after the injury by their former employers at the same or higher wages. They did not always return to the same operation as before—in many instances being given more suitable work. Higher pay was usually the result of a general increase in the scale of wages. Two returned to piece work but found that, with their handicaps, they could not turn out as much work as formerly and so could not make so high wages.

There are evidences that there is a feeling of obligation on the part of many employers to take back upon the pay-roll men who have been injured in their employ. This is the avowed policy of several firms, particularly when they feel that the men have been fair in the settlement of their compensation. How far the return of an injured man to his former occupation and wage is due to consideration on the part of the employer, and how far to unimpaired efficiency, it would be difficult to say. In an investigation made in Cincinnati the claim was made by employers that when they re-employed their injured men the "man ceased to be a valuable employee after he became aware of their moral obligation toward him. When the debt was reversed and employment was given to a man for whose handicap they were not responsible, gratitude and the dreaded difficulty of obtaining another position often made such employees more faithful."

Some men who had been taken back by their former employers expressed some fear as to the security of their positions and thought they would be discriminated against. It would seem that such an uncertainty ought to spur a man to demonstrate his ability to make good in spite of his handicap. Such a spur might easily prove to be the salvation of a crippled man.

Seventy-one other finger cases had found some employment, leaving only twenty-five, or about sixteen per cent., unemployed at the time they were visited. The finger and toe cases show the smallest proportion unemployed, the proportion of the latter being eighteen per cent.

Of the cases of injury to hands, thirteen out of thirty-six were unemployed. Nine of the

injuries resulted in amputations with the following results: A former switchman was re-employed by the same company at lower wages as a machinist's helper; a former baker took, with poor success, to peddling pretzels on the street; another baker found employment in a stable; one young man who lost his hand in a machine is studying in an engineering school; the other five were unemployed.

There were thirty-two cases of injuries to arms—seventeen had found employment and fifteen had not. Eighteen were cases involving the amputation of the whole or part of the arm. The industrial results in these eighteen cases were as follows: Three were re-employed—one at the same and two at reduced wages; five had found work as watchmen or messengers at low wages; ten were unemployed. Only one of these eighteen had suffered no diminution in his wages and this was due, it was quite evident, to his employer's consideration. All of the others had either accepted inferior positions, or were idle.

Out of a total of 226 injuries to the upper limbs, 173 (76.5 per cent.) had found employment, while fifty-three had not.

The toe cases were unimportant from the viewpoint of industrial readjustment, for the only two cases unemployed were still under medical treatment.

The twenty-four foot cases presented a total of fifteen unemployed, nine of whom were minus a foot. Five others who had lost a foot had some employment, but at reduced wages.

The ninety-two leg cases involved the largest proportion of amputations and the largest proportion of unemployment. Fifty-seven were idle and sixty-five had suffered amputations. Of those losing a leg, only three had returned to work for their former employers, as follows: One was a bill-poster and now folds paper at a lower wage; one was an upholsterer and with the aid of an artificial leg is back at the same work at the same wages; the third, who lost his leg while operating a wire-pulling machine, expected to be re-employed at a different operation, but probably at the same wages. Nineteen more of those losing a leg had found employment of one kind or another.

Amputations are great economic levelers. As will be seen by the following list of employments before and after amputations, the skilled electrician, the engineer, the baker, are all reduced to the level of unskilled labor:

HANDS	
<i>Before</i>	<i>After</i>
switchman	machinist's helper
baker	peddling pretzels
machine hand	studying
baker	stableman
ARMS	
engineer	helper in storeroom
machine hand	same
machine hand	messenger boy
driver	watchman
electrician	watchman
machine hand	delivery boy
*ferry hand	clerk
*unknown	watchman
FEET	
garment worker	unknown
checker	timekeeper
deck hand	assistant cook
longshoreman	elevator operator
*unknown	salesman
LEGS	
peddler	same
laborer	same
bill-poster	folder of paper
baker	tends shop
machinist	candy store
*student	cashier
teamster	janitor work
butcher	same
painter	employing painter
dental mechanic	same
*helper on wagon	peddles gum
haberdasher	jitney 'bus
machine hand	by same employer
*auto mechanic	repair shop
brakeman	storekeeper
upholsterer	same
student	clerk
*track inspector	peddler
*coal heaver	peddles pencils
*too young	wireless operator
*too young	newsboy
*too young	office boy

*Case of long standing.

An accident may destroy at one blow the chance to exercise that skill which is slowly acquired and which serves to raise a man above the level of his plodding fellows. A mental training which needs the cunning of a hand for its expression is no longer an economic asset when the hand is gone, unless the same training can find expression in some other way. This means that if the man is to continue to have the benefit of his old knowledge and skill either something capable of giving expression to his skill must take the place of his hand, or his knowledge must be turned to account in some other way than by the use of his hand. Mechanical devices to take the place of a hand cannot be more than clumsy instruments to do the bidding of a trained mind. In cases where the hand plays a lesser part in translating the knowledge of the mind into action some prosthetic device may be a useful substitute.

Of the twenty-seven cases who had lost hands and arms only nine had artificial ones. The high cost of a really efficient hand and arm debars many of the wage-earning class from acquiring them. One man had an expensive arm which he found too heavy. He had discarded it for a lighter device. Another man found his arm too heavy.

Of the nine men wearing artificial hands and arms six were employed. One of the three out of employment could not wear his hand because the stump was sore and a second had just gotten his arm. The chances for employment seem to be considerably better for a man who has an artificial limb than for one who has not. This is particularly so when a foot or leg is gone. Seventy-nine of the 116 foot and leg cases had suffered amputations, and forty-three had artificial limbs. An examination of these forty-three cases leads one to believe that the possession and expert use of an artificial leg greatly improve the chances of employment. Twenty men with artificial feet and legs had found employment. The experiences of the twenty-three who had artificial legs and were unemployed lead one to think that with better health, or with more serviceable legs, most of them would stand a much bet-

ter chance of employment. Two had new legs which they had not learned to use well; six had difficulty in wearing their legs because of sore stumps; in two cases trouble with the other leg prevented their getting about; in three cases the trouble seemed to be that the legs did not fit properly; three had worked with their artificial limbs but were temporarily idle; one man said the unsightliness of his "peg" leg had lost many jobs for him; one man had lost both legs at different times, and had only one artificial limb; another who had two artificial limbs and had been employed was idle at the time; two were boys who were very active on their artificial legs but were as yet industrially unattached.

The opinion among employers who were interviewed was that there were many occupations that might be filled by leg cripples who had the use of their hands. But it is quite essential that they get about with some facility. Many employers refuse to hire men who use crutches but do not object to men with artificial limbs. The possession of an artificial limb, therefore, seems to be quite essential to the employment of a leg cripple. And the success of such an appliance depends upon a healthy stump, which in turn depends upon skilful surgery and general physical health.

The Institute in its task of readjustment must keep in view the fact that proper medical and surgical attention and suitable prosthetic appliances are fundamental in the industrial rehabilitation of a cripple. It should therefore know the best appliances obtainable. A museum for the display of such devices would be a valuable part of its equipment.

IV. APPARENT NEEDS OF CASES STUDIED

An effort was made in each case to appraise the man's needs. Each investigator was asked to indicate upon a card which was filed with the case story what he thought the man needed. In 200 cases no need was indicated, inasmuch as the man seemed to have made the readjustment himself or needed no outside assistance in making it, while 161 were thought to need some care.

TABLE II

	Needing help	Needing training	Hopeful for training	Needing financial aid	Needing artificial limb	Needing employment	Needing medical treatment
Upper limb injuries							
Fingers	41	34	18	1		19	3
Hands	22	20	11		6	13	1
Arms	20	18	10		11	10	2
Totals	83	72	39	1	17	42	6
Lower limb injuries							
Toes	3	3	1			1	
Feet	13	11	4	2	3	8	
Legs	59	42	16	4	21	40	3
Totals	75	56	21	6	24	49	3
Miscellaneous	3	1	1	1			3
Grand Totals	161	129	61	8	41	91	12

The number of men who were thought by the investigators to need either re-education for their old trade, or training for a new occupation, was 129. When each case was carefully considered in the light of the man's age, his education, the kind of work he had done, his attitude towards training, his knowledge of English, etc., the number was narrowed down to sixty-one who seemed to be hopeful candidates for such training as the Institute might be equipped to do. Probably not all of these could or would enter trade classes, but from this number there could probably be selected a number of candidates who would afford good material for the educational experiment proposed.

Only eight were reported as needing financial relief other than assistance in procuring artificial limbs. There were forty-one who seemed to need help of that kind.

Some twelve cases seemed to require medical treatment before they would be fit for employment. These twelve are apart from a considerable number who are actually under treatment at the present time.

The number needing employment was ninety-one. The discrepancy between this number and the number reported as unemployed (132) is due to the fact that some thirty-one were undergoing treatment or were, at the time, physically incapacitated for work. Several others had work in view or would undoubtedly find employment themselves and a few were being cared for in one way or another.

These ninety-one men present an immediate problem of employment. Many of them are in dire need of the returns of labor and many of them are drifting into the shoals of chronic idleness and dependency. Society must either provide some adequate help to enable them to become self-supporting or ultimately assume the burden of their non-productive lives. Some of them can be directed by wise advice into some line of activity in which they can be self-supporting; some can be placed in industry without special training; help in securing proper artificial limbs will enable some to obtain work; some can be trained by a short vocational course to become wage-earners again; some should be advised to seek a thorough trade training in some approved school. The question is largely one of a study of the individual case and the choice of proper means for his industrial rehabilitation.

011
533P
No. 1
p. 3
p. 2

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**Memorandum on Provision for Disabled
Soldiers in New Zealand**

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Memorandum on Provision for Disabled Soldiers in New Zealand

There has been established in New Zealand a special department of the government to obtain suitable employment for the returned soldier and also, by any other means, to assist in his re-adaptation to civilian life. As most of the men discharged from the forces up to the present time are those who have been invalided home from the front, it follows that the major activity of the Discharged Soldiers' Information Department has been looking out for the welfare of crippled and disabled men.

The New Zealanders have laid special stress on the importance of getting in touch with every single returning man, inquiring regarding his situation, and offering such assistance as is available. To this end arrangements were made for representatives of the Department to board each incoming transport, and to obtain in preliminary form from the men themselves the items of information desired for record. Later on this system was further improved through arranging to have the principal data listed by the military authorities on board the transports while still at sea. The information is then completed by the Department's officers upon arrival in port, and the cards for the central register are written up without delay.

An important factor in the Department's work is the chain of local committees.¹ The personnel of these committees is drawn, almost without exception, from influential citizens who are officers or members of the local patriotic societies.

¹ To date local committees have been established in the following communities throughout the dominion: Whangerei, Dargaville, Auckland, Hamilton, Cambridge, Thames, Paeroa, Waihi, Te Aroha, Rotorua, Tauranga, Opotiki, Te Awamutu, Te Kuiti, Taumarunui, Taihape, Marton, Feilding, Palmerston North, Taranaki, Wanganui, Gisborne, Napier, Hastings, Dannevirke, Pahiatua, Wairarapa, Wellington, Blenheim, Nelson, Westport, Greymouth, Hokitika, Christchurch, Ashburton, Timaru, Oamaru, Dunedin, and Southland.

In fact the committees are often sub-committees of these societies, and if not in this relation, are in most intimate touch with them. Knowing the resources and opportunities in their home community, the members of a local committee are able intelligently to advise regarding the course of action in an individual case under discussion.

The man, when first listed, is as yet undischarged and therefore still under the jurisdiction of the Defense Department. So after advice regarding the home-coming man is forwarded informally to the local patriotic organization, his card is filed in the central register of the Returned Soldiers' Information Department under the classification 'not ready for action'.

The military authorities notify the Department a few days in advance of a man's discharge from the strength, and arrangements are thereupon made to have him personally interviewed. The local police officials are often delegated with the duty of this visit. The interviewer is provided with a blank report to fill out, and with a circular of information to give to the soldier. He is cautioned that the inquiries should be made in a sympathetic spirit, in order that there may be formed a true estimate of the man's needs and merits.

The form calls for answers to the following inquiries:

To be answered in all cases.

1. Name and address of soldier.
Is the man of good character?
Are his surroundings respectable?
Is he living with relatives or with whom?
2. Is he in good health or is he still suffering from disease or wounds?
3. Is he fit for employment, and, if so, has he obtained employment, and what are his wages? If he has not does he desire em-

- ployment, and, if so, what kind of employment does he wish for?
4. What are his means outside his wages?
 5. Has he received assistance from any patriotic society, etc.? and, if so, give amounts and dates.
 6. Is he receiving full military pay?
 7. Have you handed the man the information leaflet enclosed herewith?

To be answered in cases of men at present incapacitated but likely to make a good recovery.

8. When is he likely to be sound and well and ready for work?
9. Is he desirous of present employment, and, if so, what work could he undertake?
10. What employment is he desirous of undertaking when restored to health?

To be answered in cases of men permanently disabled by sickness or wounds.

11. What is the nature of his disablement?
12. What employment do you think the man is capable of?
13. What are his own ideas on the subject?
14. If unemployable, in what way do you think he could be best assisted?
15. Has he applied for a war pension? If a war pension has been granted what is the amount?

If the man does not require the Department's assistance please obtain his signature here.

I do not require the Department's assistance in obtaining employment.

[Signature]

Any other information which interviewing officer can supply.

[Signature]

[Date]

Very naturally, a considerable number of the men do not require specific assistance. They may have a business or a farm to return to, or be in possession of private means. Others are found to be already employed or to have had employment promised them. In such cases the

man's record card is transferred to the 'disposed of' section of the register.

The records of men who are under curative treatment and are not yet ready for employment are filed temporarily in the 'under action' section of the register. Except in instances of systematic neglect to reply to communications, a case is not abandoned until employment shall have been obtained or the office definitely informed that its assistance is not required.

Any inquiries on the part of the men regarding land settlement or pensions are referred to the departments of the government having these matters under jurisdiction.

Cases where the men have applied for or inquired regarding employment are regarded as active. In seeking positions to meet these demands every possible agency is employed.

The Department has conducted a propaganda to secure preference in employment opportunity for returned men. It has communicated with local authorities, patriotic organizations, farmers' unions, and private employers and has found the response, on the whole, extremely favorable. The Government has instructed all the departments that ex-members of the expeditionary force are to be given preference for all vacancies which they are qualified to fill. The local Labor Offices act on the same principle. In result a great many men have been appointed by the Public Service Commissioner or secured employment by the branches of the Labor Department. The Railway Department has helped to the best of its ability, but has itself been under necessity of providing for its own former employees who have returned disabled from the front.

The man desirous of obtaining employment is instructed to get in touch with the local committee in his home district. The case is then charged against the committee on the record of the department. If necessary, there are sent periodical reminders inquiring regarding progress, and advising of any apparently suitable vacancies which have come to the knowledge of the central office. The Department communicates to the committees all offers of employment which come to its notice. In the case of new offers it makes an inspection of the cases charged against the committee in the locality where the

work is available, and telegraphs this committee directing attention to any men who seem suitable candidates for the vacancies.

The Department keeps a double card index of the men awaiting employment. One set of cards is classified according to occupation; a second according to district of residence. Offers of employment are likewise suitably indexed.

A statement indicating the number of candidates for employment in each district is sent out weekly to the local committees. This serves as a check on their number of open cases, and incites friendly rivalry between the committees to keep down the number charged against them.

Up to June 21, 1917, the total number of men who had been registered by the Department was 9,070. This number included the general type of invalid as well as the men physically disabled. The cases were subject to the following classification:

<i>Cases disposed of.</i> Placed in employment, returned to military duty, or their old employment, or signed a statement that they do not require the Department's assistance	7,298
<i>Cases under action.</i> Department making inquiries on the soldier's behalf or awaiting notice of discharge	881
<i>Cases not ready for action.</i> Men recently returned to New Zealand, now convalescing, not ready for employment, or not yet discharged by the military authorities	692
<i>Open cases.</i> Men for whom employment is desired	199
<i>Total</i>	<u>9,070</u>

The results in an effort to provide special training or re-education for disabled men have not, on the whole, been encouraging. Although the opportunities are brought systematically to the attention of the men, the response has been indifferent. But the work is as yet new, and there are several factors that seem in some degree to account for the situation.

For agricultural training, arrangements have been made with the Agricultural Department to accept a limited number of men for instruction at the state farms. Among the various branches

of farm work are dairying, fruit-farming, cropping, poultry raising, bee culture, and market gardening. In scientific training in agricultural and pastoral subjects the authorities of Lincoln College, Wellington, have placed at the disposal of ex-soldiers five scholarships of £20 each, and have agreed to take non-resident pupils at a nominal fee. In deserving cases the Returned Soldiers' Information Department is prepared to supplement the scholarship grants by an adequate annual allowance. Few soldiers have taken advantage of the opportunities for agricultural training.

Clerical training for disabled soldiers is being provided free of expense to the government or the men by the New Zealand Society of Accountants. The subjects covered are those prescribed for the Society's bookkeeping examination. The examination fees of pupils prepared to sit at the university examinations in accountancy are also met by the Society. In addition to the classroom instruction courses are also given by correspondence for the benefit of men who cannot attend in person.

According to the annual report of the Returned Soldiers' Information Department, "a considerable number of men have from time to time entered for the classes, but it is understood that with few exceptions the attendance has been desultory and the progress poor, and it has lately been intimated to the Department by the secretary that the council of the Society is now considering whether it is justified in continuing the expenditure of some hundreds of pounds for such unsatisfactory results. The matter is unquestionably one for very profound regret, the scheme having originally been adopted by the Society on its own initiative, and promising, as we all hoped, very valuable developments."

For disabled men who cannot return to their former occupations there is offered free tuition at various technical schools throughout New Zealand. At the Wellington Technical College, for example, instruction is provided in building construction, painting, decoration and sign-writing, carpentry and joinery, plumbing, machine work, jewelry making, metal work, plastering, and modelling. At other instruction centers there are different curricula. In June, 1917, sixty-

nine men were taking training at technical schools.

By arrangement with the Jubilee Institute for the Blind training is provided for men partially or totally blinded at the front.

To remove any possible financial obstacle to men desiring to undertake training, the government some time ago decided to grant maintenance allowances not in excess of £1 a week—irrespective of pension payments—to men attending classes. These allowances are conditioned only upon approval of the training subject as suitable to the individual case and upon good conduct, regular attendance, and satisfactory progress.

Related to the question of training for men unable to follow their former trade is that of allowing disabled men to accept positions with private employers at rates of pay less than those fixed by current awards or agreements and minimum wage legislation. The subject was taken up by the Labor Department early in 1916, and under an order-in-council then approved, fourteen under-rate permits prescribing weekly wages of from £2 10s to £1 15s have been issued.

The establishment of special re-educational institutions for war cripples has been urged by various individuals and organizations. The recommendation has elicited from the minister in charge of the Returned Soldiers' Information Department the following comment:

During the last few weeks the question of the establishment of special training colleges for disabled men has been urged on the attention of the Department. The gentlemen concerned in this movement have shown most praiseworthy interest in the welfare of our returned men, and which, in so far as it manifests a lively interest in our soldiers, must command the sympathy and respect of us all. I gather from the correspondence which has come under my notice that the promoters of the scheme have in mind the provision of training colleges and farms for men still undergoing hospital treatment, and if this is correct the question more properly appertains to the work of the Department of Public Health than to the Discharged Soldiers' Information Department. So far as the latter Department is concerned, I regret that I cannot at present see my way to support a scheme of the character suggested.

The small extent to which existing facilities have been availed of would not, in my opinion, justify the large expense which the institution of special training colleges with expensive buildings, apparatus, and staff would involve. I am supported in this view by the attitude taken up by the Statutory War Pensions Committee, which has been established by legislation in the United Kingdom, and which amongst other functions deals with the training and employment of disabled men. In addressing its local committees on this particular subject it urges them to make use as far as possible of existing institutions, specifically mentioning the technical schools, and adds that "as the number of men for whom training is needed will diminish year by year after the war, expenditure on the provision of buildings and apparatus, which will only be required for a temporary period, should be kept within strict limits."

In addition to the foregoing, I doubt whether an institution of the character proposed, involving a considerable measure of control and discipline, would be appreciated by the men for whose benefit it is designed. I am inclined to think that the younger men would before very long find the necessary restraint distasteful and irksome. In this opinion I am supported by the views of a prominent member of the medical profession in New Zealand—one who I may say has had special opportunities of forming an opinion through daily contact with the inmates of one of our large convalescent homes. Speaking on this very subject of a training college for men out of or nearly out of the doctor's hands, he says, "I am a little dubious as to whether the men would be content to remain long under institutional control;" and again, "I feel sure that the feeling of independence from control, impossible in any institution, is an essential factor in any scheme designed to appeal to the average man, and not to the exceptional returned man." I am entirely in accord with these views, and for the reasons given I could not, for the present at any rate, see my way to support the schemes which have been put forward.

While the experience in the matter of training has been disappointing the results in obtaining employment for disabled men have been unusually successful. The latter may go far to explain the former, especially in view of the great present demand for labor in New Zealand, and the natural desire on the part of the men to get back at once to remunerative and productive occupation.

The amount of pension award, based as it is on medical evidence as to physical condition, is a

fair criterion of the extent of disability. A tabulation has been prepared showing the number of men drawing pensions of £1 5s per week and upward for whom the Returned Soldiers' Information Department obtained remunerative employment. As loss of sight in one eye carries with it a pension of £1 per week it is evident that the range of pensions represented in the tabulation embrace only cases of grave disability. A summary of this tabulation gives the following totals:

<i>Weekly Pension</i>	<i>Number of Placements</i>
£1 5s od	80
£1 10s od	146
£1 5s od	47

In some amputation cases the placement results were as follows:

<i>Pension</i>	<i>Amputation</i>	<i>Employment</i>
£1 15s od	Left thigh	Artificial limb making
£1 15s od	Right arm	Storeman
£1 15s od	Left foot	Draftsman
£1 15s od	Left knee	Artificial limb making
£1 15s od	Right arm	Night watchman
£1 15s od	Left arm	Fruit farming
£1 15s od	Right leg	Clerk
£1 15s od	Left leg	Night exchange attendant
£1 10s od	Right foot	Land officer
£1 10s od	Leg	Mechanic
£1 10s od	Right foot	Basket-maker
£1 10s od	Left leg	Clerical position
£1 5s od	Two fingers	Messenger

To Hon. A. L. Herdman, the minister in charge of the Returned Soldiers' Information Department, I am indebted for the information and documentary material on which this memorandum is based.

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**A Statistical Consideration of
the Number of Men Crippled in War
and Disabled in Industry**

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A Statistical Consideration of the Number of Men Crippled in War, and Disabled in Industry

In making preparations for the care of invalids of war, some reasonable estimate of the number of men which may be expected to need such care is obviously of great importance. Unfortunately the statistical aspects of this problem are so uncertain that even an estimate becomes a matter of very great difficulty. As was stated by a Canadian Commission in similar connection, "At the present stage of the war it is, of course, impossible to form even an approximate estimate of the number which may ultimately have to be dealt with, depending as it does on the duration of the war and the number of men engaged in hostilities."¹

The same uncertainty in regard to these two problems in their application to the United States still prevails in 1917, as it did for Canada in 1915.

The best that may be attempted must therefore be a hypothetical answer to a hypothetical question.

Suppose one million men were engaged for a period of one year, how many invalids of war might such a condition be expected to produce?

The answer to this question must depend upon known results of past experiences of warfare. But unfortunately comparatively little is known of the actual number of cripples and invalids produced in past wars, and still less as to the results of the current war. Military statistics of the past dealt largely with the question of killed, died, prisoners, etc., and only gross numbers of wounded without much analysis of the latter. It was impossible to find any reliable statistics or even estimates as to the number of cripples created by previous wars. And even if such data

¹ The provision of employment for members of the Canadian Expeditionary Force on their return to Canada. Plan submitted by the Secretary of Military Hospitals and Convalescent Homes Commission. Ottawa, 1915. p. 22.

were available it is questionable how far they would be applicable to the present war, which is being conducted under very much different conditions.

Not only are the numbers engaged so very much larger as to almost destroy any usefulness of comparisons, but the aims as well as methods of actual warfare have changed, and on the other hand the methods of military surgery have been vastly improved.

It has been recognized that the character of wounds in the present war is very much different from that in earlier wars because a very much larger proportion is being caused by shell and shrapnel. Even before an increase in the proportion of losses caused by gun-fire has been noticeable in the history of wars, but the change has been extraordinary in the last war.

The following figures have been taken from a memorandum prepared in February, 1916, by Colonel Hunter of the American War College at Washington, D. C.

PROPORTION OF BATTLE LOSSES CAUSED BY

<i>Army</i>	<i>Rifle</i>	<i>Artillery</i>	<i>All other</i>
Union (1861-1865)	90.1	9.8	.1
Prussian (1870-1871)	91.6	8.4	.6
Japanese (1904-1905)	83.5	13.5	3.0
Russian (1904-1905)	84.5	14.5	1.0

In the Balkan wars the losses from artillery fire were about 20 per cent. In the present war, according to a statement of General Petain of the French Army they are over 35 per cent. for the French and 45 per cent. for the Germans. In a British hospital 52 per cent. were suffering from gun shot wounds, and 40 per cent. from shrapnel. One French Army Corps which had been engaged in an energetic advance, reported

the following distribution of the wounded according to cause:

- 70.0 per cent. from shell and shrapnel
- 5.0 per cent. from mines (blowing up trenches)
- 14.0 per cent. from small arms
- 0.5 per cent. from bayonet
- 3.5 per cent. from hand grenades
- 7.0 per cent. from unknown causes

Wounds caused by shells, and especially wounds caused by shrapnel, are very much more destructive, and more frequently productive of permanent effects than those caused by small arm fire or even cold steel.

On the other hand there has been a tremendous improvement in military medicine and surgery which has saved many thousands of lives and limbs. While it is impossible to go here into this question at any length, it may be worth while to quote one significant fact. In the Civil War, the losses on the Union side were 360,128.

Killed	67,058
Died of wounds	43,612
	110,670
Died of disease	224,586
Died of other causes	24,872
	360,128

The number of deaths from disease being more than twice that killed or dying from wounds, while for Germany, for the first two years of the present war, the proportion was as follows:

Killed or died from wounds	735,866
Died from disease	48,534

or only 6.6 per cent.

Of the total number of wounded in the Union forces of the Civil War, 14.6 per cent. died, of the German forces of the War of 1870-1871 11 per cent., of the Japanese forces of the War of 1904-1905, 6.6 per cent., and of the Russian forces 3.7 per cent.²

In the present war the proportion of deaths has been further reduced, as the following table³ for Germany indicates.

² See: Battle losses of the campaign in Manchuria. By H. Fisher. *Journal of the Military Service Institution of the U. S.*, Nov. 1914. Vol. 55. No. 192.

³ See *Military Surgeon*, April, 1917.

STATISTICS CONCERNING GERMAN WOUNDED

	Died	Dismissed from service	Returned to duty
August 1914	3.0	12.2	84.8
September 1914	2.7	9.1	88.1
October 1914	2.4	8.7	88.9
November 1914	2.1	10.6	87.3
December 1914	1.7	10.5	87.8
January 1915	1.4	9.9	88.7
February 1915	1.3	10.0	88.6
March 1915	1.6	9.5	88.9
April 1915	1.4	7.4	91.2

It is generally admitted that the results may have been less favorable for some of the allied combatants, at least on the eastern and Asiatic fronts.

As far as the total number of invalids is concerned, this improvement in military surgery may have the somewhat paradoxical result of increasing them by preventing fatal consequences in many injuries which in the past, under less skillful surgery, unavoidably resulted in death.

It is necessary, therefore, to rely upon data of the present war rather than previous wars. For obvious reasons, however, information as to losses during the present war is carefully guarded. Even when the published data are taken at their face value the proportion of invalids still remains a matter of conjecture, and even after some estimate of them is made, the probable proportion depends upon the 'exposure', *i. e.*, the number of soldiers exposed to the war hazard, and as to that, too, definite statistical data are lacking.

In the following pages estimates of expert persons had to be relied upon. Statements as to number of troops engaged and losses sustained appear frequently in the daily press and other publications. Most of these statements emanate from the opponents, losses of the Central Powers being computed by the allied press, and vice versa.

Only one or two such estimates originating from neutral sources will be given here.

An estimate⁴ for the first two years of war, made early in 1917 by a Copenhagen society for

⁴ Quoted from *North China Herald*, February 10, 1917.

war study was reproduced in a very large number of newspapers throughout the world.

	IN THOUSANDS			
	<i>Died</i>	<i>Wounded</i>	<i>Total</i>	<i>Invalids</i>
<i>Central Powers</i>				
Austria-Hungary	718	1,777	2,495	533
Germany	885	2,116	3,001	635
Bulgaria	25	60	85	18
Turkey	150	350	500	105
	1,778	4,303	6,081	1,291
<i>Allied Powers</i>				
Belgium	50	110	160	33
France	885	2,115	3,000	634
Great Britain	205	512	717	154
Italy	105	245	350	74
Russia	1,498	3,820	5,318	1,146
Serbia	110	140	250	42
	2,853	6,942	9,795	2,083
<i>Grand Total</i>	4,631	11,245	15,876	3,374

The round numbers in which the estimates are given are sufficient indication of the paucity of accurate statistical data.

Unfortunately the data of greatest importance for us here are probably the least trustworthy, namely as to the number of invalids. They seem to indicate that on an average 30 per cent. of the wounded become invalids. The German data above given, as well as estimates from other countries, create a strong presumption of a very much smaller percentage of permanent invalids. Thus it is stated in a military periodical⁵ that the British losses in the battle of the Somme amounted to some 4,000 per day, distributed as follows:

Killed or dying of wounds or disease	800	20 per cent.
Prisoners	600	15 per cent.
Wounded (not fatally)	2,600	65 per cent.
Of these returned to duty	2,210	85 per cent.
Permanently disabled	390	15 per cent.

It is probable that the proportion of the wounded who have to be discharged for permanent disability does not exceed 20 per cent. at

most; that on the Western Front and for Germany it does not exceed 10 per cent.

An estimate of the losses for the first two years of the war, with the assumption "that in Germany 90 per cent. of the total wounded return to the front, and 80 per cent. in all other countries," made by Col. W. W. Harts of Washington, D. C., was obtained in the Library of the Army War College.

This estimate shows evidence of use made of the data of the Copenhagen society, and yet differs from it in certain cases:

PRESENT WAR LOSSES

	<i>Killed</i>	<i>Disabled by wounds</i>	<i>Captured or missing</i>	<i>Total</i>
England	205,400	102,500	107,500	515,400
France	870,000	540,800	400,000	1,810,800
Russia	1,500,000	784,200	800,000	3,084,200
Italy	105,000	49,000	55,000	209,000
Belgium	50,000	22,000	40,000	112,000
Serbia	60,000	28,000	88,000
	2,790,400	1,526,500	1,402,500	5,819,400
Germany	893,200	450,000	245,000	1,588,200
Austria	523,100	355,000	591,000	1,469,100
Turkey	127,000	110,000	70,000	307,000
Bulgaria	7,500	7,000	6,000	20,500
	1,550,800	922,000	912,000	3,384,800
<i>Grand Total</i>	4,341,200	2,448,500	2,314,500	9,204,200

The average loss of life per month of conflict figures at some 180,000 and the average number of invalids at some 100,000 per month.

These averages are obtained by a simple division of the totals by 24. Some of the belligerents, however, had not been participating in the struggle during the entire two-year period, and thus some additional error is introduced which becomes of some moment when an effort is made to correlate the above figures with the number of persons exposed.

To adjust for this error the following table may be constructed:

⁵ *Military Surgeon*, December, 1916.

	Time of Entry into War	Months until August 1, 1916	KILLED		DISABLED BY WOUNDS	
			Total	Per Month	Total	Per Month
<i>Allied Nations</i>						
Great Britain	August 4, 1914	24	205,400	8,558	102,500	4,271
France	August 1, 1914	24	870,000	36,250	540,800	22,533
Russia	August 1, 1914	24	1,500,000	62,500	784,200	32,675
Italy	May 23, 1915	14	105,000	7,500	49,000	3,500
Belgium	August 1, 1914	24	50,000	2,083	22,000	917
Serbia	July 28, 1914	24	60,000	2,500	28,000	1,167
			2,790,400	119,391	1,526,500	65,063
<i>Central Powers</i>						
Germany	August 1, 1914	24	893,200	37,217	450,000	18,750
Austria	July 28, 1914	24	523,100	21,796	355,000	14,792
Turkey	October 29, 1914	21	127,000	6,047	110,000	5,238
Bulgaria	October 13, 1915	9½	7,500	763	7,000	737
			1,550,800	65,823	922,000	39,517
<i>Grand Total</i>			4,341,200	185,214	2,448,500	104,580

Taking therefore all the combatants at war in Europe in the fall of 1916, their average monthly losses seem to equal about 185,000 dead and 105,000 permanently disabled by wounds.

What proportion does that represent of the forces exposed? In other words what was the numerical strength of the fighting armies during these two years? An accurate statistical computation would require such data for every month during these twenty-four months. Of course such data are not available except to the governments engaged in the war. Numerous estimates have, however, appeared, and of these the following prepared by Colonel Harts is quoted. This represents the fighting strength of all the armies towards the close of 1916. (The navy and the armies conducting military operations in various colonies have not been included.)

PRESENT STRENGTH OF ARMIES

England	2,600,000
France	2,790,000
Russia	6,500,000
Italy	1,700,000
Belgium	200,000
Serbia	272,000
Rumania	600,000
Total	14,662,000

Germany	4,000,000
Austria	2,500,000
Turkey	690,000
Bulgaria	260,000
Total	7,450,000

According to this estimate the total strength equaled about 22,000,000. Approximately at the same time (December 17, 1916) an estimate was published in the *New York Times* of 18,150,000 men, but this did not include the Asiatic theatres of war.

How far are these estimates representative of the entire course of war? Undoubtedly it took some time to develop the full war strength, especially in the case of some belligerents. This would make the size of the armies an ascending line. On the other hand the accruing losses from fatalities, wounded, prisoners, sick, missing, would tend to make the line a descending one. In absence of better statistical data, it may be permissible to assume as a very rough approximation that the total fighting strength of the belligerents averaged about 20,000,000.

This would lead to the conclusion that the average monthly loss per 1,000,000 men equaled about 9,250 in killed and 5,250 in disabled. The proportion per annum would equal about 111,000 killed and 63,000 permanently disabled. The average number of wounded would be between 400,000 and 500,000.

Assuming a definite estimate as to the total number of persons disabled, what proportion of these would come within the class for which re-educational service is intended? In regard to this problem, some very interesting data have been published by Canadian authorities.⁶

According to the information obtained by this authority, the number of Canadian men discharged from the Army and Navy as disabled through the war, up to April 15, 1915, was 2,977, and this was distributed as follows:

Eyesight Cases	254
Wounds and injuries to leg (necessitating amputation)	215
Wounds and injuries to arm (necessitating amputation)	176
Wounds and injuries to hand (necessitating amputation)	21
Wounds and injuries to leg (not necessitating amputation)	286
Wounds and injuries to arm (not necessitating amputation)	275
Wounds and injuries to hand (not necessitating amputation of complete hand)	235
Wounds and injuries to head	127
Hernia	101
Miscellaneous wounds and injuries	135
Chest complaints (including tuberculosis)	302
Rheumatism	122
Heart disease	284
Epilepsy	47
Nervous diseases	65
Insanity	29
Deafness	134
Frost bite	6
Miscellaneous disabilities	163
<i>Total</i>	<i>2,977</i>

This table may be summarized as follows:

	<i>Number</i>	<i>Per Cent.</i>
Wounds and injuries to extremities, requiring major amputations	412	13.9
Other permanent injuries to extremities	796	26.7
Other injuries and wounds	363	12.2
Eyesight and deafness cases	388	13.0
<i>Total wounds and injuries</i>	<i>1,959</i>	<i>65.8</i>

⁶ See: Provision of employment for the members of the Canadian Expeditionary Force on their return to Canada. A plan submitted by the Secretary of the Military Hospitals and Convalescent Homes Commission. p. 23.

Diseases of chest, heart, rheumatism	708	23.8
Nervous diseases	141	4.7
Miscellaneous disabilities	169	5.7
<i>Total diseases</i>	<i>1,018</i>	<i>34.2</i>

In so far as it is possible to draw deductions from these figures of limited size, they seem to lead to two conclusions.

About one-third of the discharges are due to disease and not to injuries or wounds. Since the estimates made above refer only to those disabled by wounds, it seems probable that in addition to some 60,000 permanently disabled by wounds, there may be a substantial number of those seriously disabled by disease, especially tuberculosis, heart disease, rheumatism, and nervous diseases.

Of the 1,959 disabled by wounds and injuries, 1,208, or nearly 62 per cent. are cases of amputation and other injuries of extremities. It is this group that represents the greatest need of industrial re-education. On the basis of earlier estimates made here, this would equal nearly 40,000 men.

As far as it is possible, therefore, to make an estimate at present, the following seems justified.

Given an army of 1,000,000 men operating for a year, some 40,000 men may be expected to be crippled through serious injuries to their extremities and therefore to require special placement facilities or vocational re-education.

Perhaps a further estimate as to the number of leg, arm, and hand cases may be ventured, though always remembering that extreme caution is necessary in accepting these figures.

Amputation of leg	7,100
Amputation of arm	5,800
Amputation of hand	700
Injuries to leg, requiring no amputation	9,500
Injuries to arm, requiring no amputation	9,100
Injuries to hand, requiring partial or no amputation	7,800
	<i>40,000</i>

ESTIMATE OF THE NUMBER OF CRIPPLES IN THE UNITED STATES

In the absence of any reliable statistics concerning the number of crippled persons in the

United States, some estimate must be made, and for this purpose some fragmentary data of foreign origin may be utilized, though the conclusions to be derived from these data must be cautiously accepted.

THE BIRMINGHAM ENQUIRY

A census of crippled persons⁷ was taken in Birmingham, England, in 1910, by a voluntary committee.

Because of this non-official character of the investigation, which had to rely upon information voluntarily furnished, it is highly probable that the results underestimate the actual number of crippled persons in the city, especially as far as persons in better economic circumstances are concerned. In fact the Committee speaks of itself as "appointed to make a register of the cripples among the working classes of Birmingham." The investigation is described as "primarily one into the total number of cripples and their social condition."

One of the main difficulties of a scientific census of cripples is a proper definition. The Birmingham Committee formulated the following definition: "A person whose (muscular) movements are so far restricted by accident or disease as to affect his capacity for self-support."

Main Results. The Committee found in Birmingham altogether 1,729 crippled persons, distributed by age and sex, as follows:

	Male	Female	Total
Over 60 years of age	115	88	203
45 to 60 years	168	107	275
30 to 45 years	121	103	224
16 to 30 years	142	157	299
Total, Adults	546	455	1,001
Children, under 16	388	340	728
	934	795	1,729

The estimated population of Birmingham at the time of the census is given as 525,860, which gives the proportion of cripples as 0.3288 of 1 per cent., or a little less than one-third of 1 per cent.

⁷ See: City of Birmingham Education Committee. Report of a Special Sub-Committee of Enquiry, concerning physically defective adults and children, presented to the Education Committee, 27th October, 1911. Birmingham. [1911].

If the same proportion held true of the United States, then with a population of 102,017,312 (for Continental United States, without any of its colonial or non-contiguous possessions, the estimated number of cripples would be 335,433, of which adults (over 16 years of age) would number 194,139 (105,894 males, and 88,245 females) and children 141,296.

ECONOMIC CAPACITY OF CRIPPLES

For the purpose of estimating the economic capacity of the cripples, the Birmingham Committee created four divisions:

- (A) Able to go to work under ordinary conditions
- (B) Able to attend a central workshop
- (C) Able to do remunerative work at home
- (D) Unable to do any remunerative work

As far as children under 16 are concerned the same classification was applied, but in a conjectural way, as here probabilities of the future, rather than the present status, were to be considered. The children were therefore divided into these four groups, according to what they were 'likely' to be able to do, and an additional group 'E' was provided for cases in which it was "impossible to estimate their future capacity."

	MALE		FEMALE		TOTAL	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Adults						
A	128	23.5	86	18.9	214	21.4
B	84	15.4	61	13.4	145	14.5
C	30	5.5	81	17.8	111	11.1
D	304	55.6	227	49.9	531	53.1
	546	100.0	455	100.0	1,001	100.0
Children						
A	125	32.2	125	36.8	250	34.3
B	110	28.4	81	23.8	191	26.2
C	22	5.6	20	5.9	42	5.8
D	31	8.0	37	10.9	68	9.3
E	100	25.8	77	22.6	177	24.4
	388	100.0	340	100.0	728	100.0
Total						
A	253	27.1	211	26.5	464	26.8
B	194	20.8	142	17.8	336	19.4
C	52	5.6	101	12.7	153	8.8
D	335	35.8	264	33.2	599	34.7
E	100	10.7	77	9.8	177	10.3
	934	100.0	795	100.0	1,729	100.0

While over one-half of the adult cripples are therefore unable to do any remunerative work, of the crippled children only about 10 per cent. are in such hopeless condition, and of all the cripples perhaps two-thirds, or at least three-fifths, are capable of participating to a greater or lesser degree in the economic life of the country.

Accepting the above estimates for the United States, some 200,000 to 250,000 cripples would be able to do some work, and presumably in a position to profit by special training.

As to the actual condition at the time of the investigation, as far as the adults are concerned, there were:

	Male	Female	Total
Self-supporting	99	77	176
Not self-supporting, but do not require help	86	70	156
Not self-supporting, do not require help at present, but will want help later on	54	90	144
Not self-supporting and require help	95	96	191
Maintained in institutions	212	122	334
	546	455	1,001

It is evident that while 60 to 66 per cent. were capable of some work, only 17.5 per cent. were self-supporting at the time.

While the investigation did not go very exhaustively into the question of causes the following data for 1,549 cases are interesting.

	ADULTS		CHILDREN		TOTAL	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Tubercular diseases	206	24.9	285	39.5	491	31.1
Infantile paralysis	73	8.8	175	24.3	248	16.0
Rickets	7	0.8	73	10.1	80	5.2
Congenital deformity	47	5.7	71	9.8	118	7.6
Apoplexy and birth palsy	116	14.0	58	8.1	174	11.2
Accidents	133	16.1	25	3.5	158	10.2
Potts disease	246	29.7	34	4.7	280	18.7
	828	100.0	721	100.0	1,549	100.0

Tuberculosis and infantile paralysis constituted therefore the known causes of almost one-half of all the cases, with rickets and congenital deformities as other important factors. There is, however, an important difference when the causes for adults and children are compared. While tuberculosis and infantile paralysis are important in both groups (and are to be found among adults largely as a result of diseases suffered during childhood) other diseases and accidents appear as equally important factors, developing in later life. In fact eliminating the first five groups as almost exclusively or very largely acquired in childhood, there are 379 cases left of which 133, or about 35 per cent., are due to accidents, and 65 per cent. to various diseases of adult life, with rheumatic affections, nervous

affections and venereal diseases predominating as factors.

STATISTICS OF CRIPPLED CHILDREN IN THE GERMAN EMPIRE

The most important statistical investigation of cripples is that undertaken by the German government at the initiative of several organizations for the care of cripples in 1906, prepared by Dr. Konrad Biesalski, perhaps the foremost expert in the care of cripples, and published in 1909.*

Unfortunately it is altogether limited to children under 16, and fails therefore to give a com-

* Konrad Biesalski, Umfang und Art des jugendlichen Krüppeltums und der Krüppelfürsorge in Deutschland. Leipzig, 1909.

plete survey of the problem of the crippled in Germany.

With a population of 50,897,000 on December 1, 1905, the total number of cripples under 16 ascertained through the census was 75,183 or 1.48 per 1,000 population. When this proportion is compared with that ascertained for Birmingham (728 crippled children in a population of 525,860 or 1.38 per thousand) the correspondence appears to be remarkable. On the basis of the German census the number of cripples in the United States could be estimated approximately as follows:

Children

$$102,017 \times 1.48 \text{ per cent.} = 150,985$$

Adults

$$150,985 \times 1001 \div 728 = \frac{207,397}{358,382}$$

The main data as to nature of the condition of the 75,183 cripples may be given here:

Pronounced curvature of the spine		9,167
Tuberculosis of bone or joint		11,303
Deformities, congenital		
Upper extremity	576	
Lower extremity	940	
Both, or other deformity	342	
		1,858
Deformities, through injury		
Upper extremity	1,736	
Lower extremity	1,897	
Both, or other deformity	161	
		3,794
Deformities, through disease		
Other than tuberculosis		
Upper extremity	237	
Lower extremity	1,599	
Both, or other deformity	126	
		1,962
Dislocation of joints		
Hip joint, congenital	6,479	
Hip joint, acquired	886	
All other	1,036	
		8,401
Supernumerary fingers, toes		298
Fingers, toes grown together		
Congenital	617	
Acquired	47	
		664
Curvature fingers, toes		
Congenital	187	
Acquired	255	
		442

Rachitis, general		2,367
Pronounced rachitic curvature of member		4,724
Crippled feet		4,658
Infantile paralysis		11,165
Loss of member, congenital		
1 Upper extremity	355	
1 Lower extremity	59	
More than 1	45	
		459
Loss of member, acquired		
1 Upper extremity	166	
1 Lower extremity	459	
More than 1	25	
		650
Loss of part of extremity, congenital		
Hand	421	
Fingers	802	
Foot	339	
Combination	139	
		1,701
Acquired		
Hand	126	
Fingers	1,737	
Foot	215	
Other	32	
		2,110
All other		9,460
<i>Total congenital</i>		24,465
<i>Total acquired</i>		50,718
<i>Total</i>		75,183

Even of the crippled under 16 years, therefore, over two-thirds suffered from conditions acquired either through disease or accident, and not congenital. And of course among the adult cripples, as the Birmingham figures indicate, the proportion of acquired defects is still higher.

Evidence of this somewhat obvious tendency may be had when the results of the German census are analyzed into two groups:

(a) Children under six

(b) Children from six and under sixteen

	CONGENITAL CONDITION		ACQUIRED CONDITION		Total
	Number	Per cent.	Number	Per cent.	
Under 6	6,254	42.1	8,611	57.9	14,865
6 to 16	18,211	30.2	42,107	69.8	60,318
Total	24,465	32.5	50,718	67.5	75,183

CRIPPLED THROUGH INDUSTRIAL ACCIDENTS

In higher age groups accidental injuries furnish an important factor of permanent injuries. These accidental injuries obtained in civil life may be divided into two groups—industrial and non-industrial injuries. The division is, however, a somewhat artificial one. Perhaps the term used for a time in American literature, but recently discarded, 'work accidents', better expresses the difference. A work accident, or to use the more recent terminology—an industrial injury—is an injury sustained by a worker while at work, and according to the language of some laws, arising out of the employment. A good many other accidental injuries (as for instance those sustained by passengers on railroads) are also due to the industrial activity of the country, but are not technically designated as industrial injuries.

Statistics of accidental injuries are unfortunately as yet in a very unsatisfactory condition in this country. Practically no information of practical value is to be had concerning injuries

of the non-industrial character, except some information concerning railroad accidents, and in some cities, as to street accidents.

Statistics of industrial accidents in general and especially as to accidents to railroad employees and miners have been gathered and published in the United States by State Bureaus for many years, but most of it was very incomplete until very recently. Since 1911 compensation laws have been passed in a very large number of states, such laws being in effect in thirty-six jurisdictions (thirty-two states, territories of Alaska, Hawaii and Porto Rico, and the United States for its own civilian employees), and at the present writing such laws have been enacted in forty-one jurisdictions (thirty-seven states, three territories and United States). Only a few of these states have undertaken the collection and study of accident statistics in connection with the administration of the compensation laws. But a careful study of the available data makes at least some scientific estimate as to the total number of industrial accidents possible for the country as a whole.

California	1915	67,538
Connecticut	November 1, 1914 to December 31, 1915 (14 months)	37,070
Illinois	July 1, 1914 to July 1, 1915	12,240
Iowa	July 1, 1915 to July 1, 1916	31,741
Kansas	1915 to 1916	3,085
Maryland	November 1, 1914 to November 1, 1915	20,348
Michigan	1915	39,781
Massachusetts	1913 to 1914	96,891
Minnesota	July 1, 1915 to July 1, 1916	13,418
Montana	July 1, 1915 to July 1, 1916	6,804
Nevada *		1,385
New Jersey	1916	8,611
New York	1915	235,565
Ohio	July 1, 1914 to July 1, 1915	73,541
Pennsylvania	January 1, 1916 to November 1, 1916	67,933
Washington	September 1, 1915 to 1916	19,494
West Virginia		11,415
Wisconsin		11,157
		<u>758,017</u>

Thus the latest statistical returns of eighteen states with a population in 1916 of 53,968,000 indicate 758,000 industrial injuries in one year, which for a total population of 102,017,000

* Average of three years.

would equal a total of 1,433,000 reported injuries.

But a rough computation like this unfortunately contains a great many sources of error. Not only do states differ as to the proportion of

the population subject to industrial injuries, but in addition the methods of presenting accident statistics are so different, that little can be learned by the addition of figures of different states. In addition, in many states included in the above tables, certain industries (as, for instance, railroads, agriculture, etc.) are not included under the compensation law—and the reports are therefore far from complete.

The main disturbing factor is, however, the difference in the definition of an 'accident' or 'injury', the slightest scratch being counted in some states, while only accidents calling for money compensation and causing disability of over two weeks' duration are included in others.

In order to make the data at all comparable they have been reduced, as far as possible, to a uniform basis, to what is known in the technical language of accident statistics as a 'tabulatable accident', or an accident causing disability on some other day besides the day of occurrence. Accidents causing no disability beyond perhaps the time required for the dressing, and in any case none beyond the day on which the accident has occurred, have been excluded. For some states it is possible to ascertain the actual figures from the reports, for others these relations may be estimated by the use of the so-called 'Standard Accident Table'.¹⁰

Furthermore, when the reports include only the more serious accidents of over one week's, or two week's, duration the probable number of 'tabulatable accidents' can be ascertained by means of the same Standard Accident Table.

In the same table are also stated the approximate number of employees covered by the compensation act of the state (according to a computation made by the Bureau of Labor Statistics of the United States Department of Labor (Bulletin 203, p. 66).

The number of fatal accidents which is much more comparable and not subject to some of the above qualifications, is also stated.

	<i>Employees covered by Act</i>	<i>Fatal accidents</i>	<i>Non-fatal accidents</i> ¹¹	<i>Total</i>
California	611,941	533	46,305	46,838
Iowa	266,936	61	6,471	6,531
Kansas	108,388	57	3,028	3,085
Maryland	188,433	121	20,227	20,348
Massachusetts	1,109,134	509	50,256	50,765
Michigan	597,585	332	39,449	39,781
Minnesota	379,349	195	13,223	13,418
Montana	56,826	136	6,668	6,804
Nevada	24,746	36	1,349	1,385
New Jersey	861,963	308	8,303	8,611
New York ¹²	1,748,213	1,079	140,260	141,339
Ohio	1,008,813	482	73,059	73,541
Pennsylvania	2,149,867	2,324	167,676	170,000
Washington	191,458	314	19,180	19,494
West Virginia	203,139	544	10,871	11,415
Wisconsin	401,009	166	17,607	17,773
	9,907,800	7,197	623,932	631,128

Tested by the Standard Accident Table these figures do not appear unreasonable. According to the Table, fatal accidents constitute a little less than 1 per cent. (0.932 per cent.) of all accidents, while for the sixteen states above given the proportion is 1.14, the difference being either due to the omission of many minor accidents from the reports, or perhaps the somewhat more serious character of American industrial injuries.

In the Bulletin of the United States Bureau of Labor Statistics above quoted the following estimates as to the number of employees in compensation and non-compensation states is given (p. 66):

Compensation States (35)	
Employees covered by act	13,307,403
Employees not covered by act	6,264,573
	19,571,976
Non-Compensation States	6,563,700
	26,135,676
Employees of United States	488,711
Interstate Commerce Employees	1,300,000
	27,924,387

¹⁰ Standard Accident Table, by I. M. Rubinow. Spectator Co., 1915.

¹¹ Loss of time one day and over.

¹² Estimated.

Since a great variety of states is represented in the sixteen for which the above data were given, it may not be unreasonable to assume that the average accident rate for these sixteen states will hold for the country at large.

On this assumption the total number of fatal and non-fatal accidents (on a comparable basis of accidents of at least one day's duration) for the 26,135,676 employees in all the states with or without compensation laws would be:

	<i>Employees</i>	<i>Fatal Accidents</i>	<i>Non-fatal Accidents</i>	<i>Total</i>
16 states as in the preceding tables	9,907,800	7,197	623,932	631,129
All states	26,135,676	19,711	1,708,837	1,728,548

To this estimate should be added the number of accidents to the civilian employees of the United States Government and to the railroad employees which are excluded from the accident statistics of all the states.

	<i>Fatal Accidents</i>	<i>Non-fatal Accidents</i>	<i>Total</i>
Industrial population in general	19,711	1,708,837	1,728,548
U. S. Employees ¹³	117	10,759	10,876
Railroad Employees	2,687	160,663	163,350
	22,515	1,880,259	1,902,774

A general estimate of some 22,500 fatal accidents and a total of 1,900,000 seem therefore justified.

For the purposes of this report, however, the essential problem is neither the number of fatal accidents nor the total number of accidental injuries reported, but the number of those which create cripples. Applying the definition which has been used by the Birmingham Committee,

¹³ For 1912-1913, when building operations on the Isthmian Canal were almost concluded. In the previous years the number of fatal accidents on the Canal alone fluctuated about 100, and in the entire service about 200 to 230 per annum.

namely, a cripple is "a person whose (muscular) movements are so far restricted by accident or disease as to affect his capacity for self-support," the problem appears identical with that of determining what in the technical language of compensation laws are known as injuries leading to or resulting in 'Permanent Disability'. Such disability may be either total (when earning capacity is altogether destroyed) or partial when the earning capacity has been only reduced but not altogether destroyed, *i. e.*, when the injured person after surgical recovery may still obtain some employment but is unable to earn as much as before, or perhaps his disability is largely expressed in greater difficulty of obtaining employment, as a result of the evidence of his injury.

The large majority of the 2,000,000 industrial injuries, more or less, which occur in this country, naturally does not have such serious results. In fact some 60 per cent. of them lead to complete recovery in less than two weeks, and cause perhaps little more than some pain and discomfort, some loss of wages, and some expense for medical or surgical treatment.

But how many serious injuries with permanent results occur annually in this country as a result of our industrial activity?

If even the bare determination of the total number of accidents, or the number of fatal accidents, requires numerous estimates and computations, the situation is statistically still more complex as far as the number of injuries of any particular description is concerned.

The problem may, however, be approached in two different ways.

The Standard Accident Table. As this very problem has become one of considerable importance in the business of compensation insurance, a "Standard Accident Table" was constructed, largely on the basis of European experience which gives the probable distribution of 100,000 accidents according to the nature and gravity of the injury.

Briefly it is assumed, on the basis of this table, that every 100,000 industrial accidents, taking industry by and large, will be distributed approximately as follows:

Fatal cases	932	
Total permanent disabilities due to dismemberments	23	
Total permanent disabilities due to other causes	110	
Partial permanent disabilities due to dismemberments	2,300	
Partial permanent disabilities due to other causes	2,442	
Temporary disabilities	94,193	
	100,000	

Injuries resulting in permanent disability, either total or partial in character, may be divided into two large groups:

(a) Dismemberment, or actual loss of some member, or part of member, including loss of eyes.

(b) All other, including loss of use of member, or reduction in functional activity, such as non-united fractures, dislocations, curvatures, contractions, paralysis, weakening of muscles, etc., etc.

The division is of surgical rather than economic importance. But it has acquired also considerable legal importance under American compensation practice for two reasons:

1. Because the great majority of the acts (perhaps some thirty of them) provides different methods of compensation for these two groups of injuries, having schedules of specific benefits for dismemberments, and

2. Because dismemberments are recognizable easily and early, while the other cases of permanent partial disability are not so obvious. The statistical information concerning the latter is therefore much less satisfactory.

Analyzing further the 2,300 dismemberments, which according to the Standard Accident Table may be expected out of every 100,000 accidents.

Loss of arm	159	
Loss of hand	111	
Loss of one leg	129	
Major losses	—	399
Loss of more than one finger		
right hand	256	
Same, left hand	249	
	—	505
Loss of one finger or thumb		
right hand	181	
left hand	160	
	—	341

Loss of one phalanx		
right hand	203	
left hand	274	
	—	477
Loss of toes		57
Loss of one eye		521
		2,300
Total permanent disabilities		
Loss of two legs		3
Loss of both eyes		20
Other causes		110
		133

In this investigation of the problem of cripples it has been agreed to exclude the entire question of blindness, total or partial. The cases of loss of eyes may therefore be disregarded. Furthermore the cases of loss of not more than one phalanx or one finger in the vast majority of cases are not sufficiently important to justify inclusion under the definition of cripple. Thus adjusted, the number of cases per 100,000 accidents which would come under the definition would appear to be

Total permanent disabilities	113
Dismemberments, exclusive of 'eye cases, and exclusive of cases of loss of one phalanx only	1,302
Other cases of permanent partial disability	2,442
	3,857

which equals 3.857 per cent. of the total number of accidents.

In order to apply this method for an estimate of the probable number of permanently disabling accidents in the country, we may either assume this proportion of 3.857 per cent., or apply the proportion of 3,857 such accidents to 932 fatal accidents, which would give a rate of 4.138. In favor of the latter method the argument may be cited that during the early years, accident reporting, many minor accidents remain unreported, and that explains the seemingly higher proportion of fatal accidents in the estimate given for the country as a whole. A conservative procedure would be to assume the mean of the results of the two methods, as the one most likely to approach the actual conditions.

ESTIMATED NUMBER OF PERMANENT DISABILITIES
PRODUCED ANNUALLY BY INDUSTRIAL
ACCIDENTS IN THE UNITED STATES

	First Method	Second Method	Mean
Total permanent disabilities	2,150	2,724	2,437
Dismemberments	24,774	31,354	28,064
Other cases	46,466	58,990	52,728
<i>Total</i>	<i>73,390</i>	<i>93,068</i>	<i>83,229</i>

The number of dismemberments (28,064) leading to partial permanent disability may be further analyzed as follows:

Loss of arm	3,425	24,054
Loss of hand	2,393	
Loss of more than one finger	10,886	
Loss of one finger	7,350	
Loss of leg	2,781	4,010
Loss of part of foot, and toes	1,229	
		28,064

How far this estimate is reasonable may be ascertained by combining such statistical data as may be obtained from the numerous publications of various State Accident Boards and Compensation Commissions.

CALIFORNIA

Annual Reports of the Industrial Accident Commission
1912-1915

	1912	1913	1914	1915	Total 4 yrs.
Fatal	412	583	678	533	2,206
Loss of					
Arm	21	7	28	13	70
Hands	15	10	12	7	44
Two or more fingers	111	90	183	175	559
One finger	202	293	482	422	1,398
Leg	21	15	45	19	100
Foot	12	2		9	23
Toes	13	35	54	40	142
Two or more mem- bers	3		1		4
	398	452	805	685	2,340
Other permanent injuries	61	78	315	404	858
<i>Total</i>	<i>459</i>	<i>540</i>	<i>1,120</i>	<i>1,089</i>	<i>3,198</i>

NOTES. Seeming increase in 1914 due to change from voluntary to compulsory act.

Loss of eye, vision or hearing excepted.

MARYLAND

First Annual Report of the Industrial Accident Commission
Year November 1, 1914, to October 31, 1915

Fatal	121
Loss of Arm	3
Hand	3
Two or more fingers	49
One finger	130
Leg	3
Toes	4
	192
Other permanent injuries	15
	207

MASSACHUSETTS

Annual Reports of the Industrial Accident Board

	1912-1913	1913-1914	Total
Fatal	474	509	983
Loss of			
One arm or hand	35	40	75
Two or more fingers	133	114	247
One finger	672	804	1,476
One foot—leg	22	24	46
Toes	55	51	106
Two or more members	1	5	6
	918	1,038	1,956

MICHIGAN

Report of the Industrial Accident Board
1915 and 1916

	1915	1916	Total
Fatal	332	389	721
Loss of Arm	12	17	29
Hand	13	35	48
Two or more fingers	209	342	551
One finger	249	415	664
Part of one finger	363	739	1,102
Leg	14	15	29
Foot	8	13	21
Toes	50	46	96
<i>Total</i>	<i>918</i>	<i>1,622</i>	<i>2,540</i>
Without loss of part of finger	555	883	1,338

MINNESOTA

Biennial Report of the Department of Labor and Industry
(Year ending June 30)

	1914-1915	1915-1916	Total
Fatal	129	195	324
Loss of Arm	2	1	3
Hand	3	2	5
More than one finger	59	51	110
One finger	75	63	138
Part of one finger	131	118	249
Leg	3	1	4
Foot or part of foot	7	5	12
Toes	38	14	52
Dismemberments	318	255	573
Dismemberments, without loss of part of one finger	187	137	324
Other permanent injuries	80	192	272
	267	329	596

MONTANA

First Annual Report of the Industrial Accident Board

	1915-1916
Fatal	136
Loss of Arm	3
Hand	6
Two or more fingers	9
One finger entire	13
One phalanx of one finger	33
Leg	2
Foot	1
Toes	11
	78
Without loss of one phalanx of one finger	45

NEVADA

Report of the Nevada Industrial Commission, 1914-1916
(Three years)

Fatal	107
Loss of Arm	2
Hand	3
Two or more fingers	12
One finger	29
One phalanx	25
Leg	2
Foot	3
Toes	7
	83
Other permanent disabilities	128
	211

NEW YORK

Annual Report of the Industrial Commission for 1915
(Nine months ending March 31, 1916)

Death	599
Two members	4
Loss of Arm	25
Hand	65
Two or more fingers	291
One finger	444
One phalanx	834
Leg	14
Foot	33
Toes	77
One phalanx of toe	28
	1,815
Excluding loss of one phalanx of finger or toe	862
	953
Other permanent cases	17
	970

WASHINGTON

Annual Reports of the Industrial Insurance Department

	1911- 1912	1912- 1913	1913- 1914	1914- 1915	Four Years
Fatal	279	371	324	215	1,189
Loss of Arm	8	13	11	5	37
Hand	20	12	6	8	46
Leg	11	20	16	14	61
Foot	2	8	4	5	19
Two fingers or more	108			99	
One finger	281			269	
Toes	29	537	424	21	1,771
Other	2			1	
	461	590	461	422	1,934
Other permanent injuries	226	860	1,020	914	3,020
Total permanent injuries	687	1,450	1,481	1,336	4,954

WISCONSIN

Industrial Commission Report on Industrial Accidents
July 1, 1912 to December 31, 1914

Fatal	361
Loss of Arm	23
Hand	15
Leg	14
Foot	10
Two or more fingers	246
One finger	668
Toes	39
Other	4
	1,019

	<i>Period</i>	<i>Fatal</i>	<i>Dis- member- ments</i>	<i>Other</i>	<i>All Per- manent injuries</i>
California	4 years	2,206	2,340	858	3,198
Maryland	1 year	121	192	15	207
Michigan	2 years	721	1,338	?	1,338
Massachusetts	2 years	983	1,956	?	1,956
Minnesota	2 years	324	324	272	596
Montana	1 year	136	45		45
Nevada	3 years	107	83	128	211
New York	9 mos.	599	953	17	970
Washington	4 years	1,189	1,934	3,020	4,954
Wisconsin	2½ yrs.	361	957	?	957
<i>Ten states</i>		6,747	10,122	4,310	14,432

When the available data for ten states are summed up it appears that for 6,745 death cases there were 10,122 cases of dismemberments, or 1.5 cases of dismemberments per 1 case of death. This is only slightly higher than the assumption made earlier ($1302 : 932 = 1.4$) and the difference is undoubtedly due to the impossibility of

excluding minor losses of one phalanx in some states.

As far as the other cases of permanent disability are concerned, American statistical data are as yet practically worthless. In fact this is one of the serious shortcomings of American compensation legislation that these cases are hardly appreciated as yet. In many states *no* cases of permanent disability seem to have been recorded except such as result from actual loss of members—a state of affairs thoroughly contrary to the experience of any one who is familiar with surgical results of accidental injuries. The American data obtainable as yet concerning this group of permanent disabilities are worthless. But as far as the statistics of dismemberments are concerned, the estimate of some 28,000 per annum appears supported by the available statistical material and the total number of industrial injuries when permanent, or at any rate, long term results may be expected, is probably somewhere between seventy and eighty thousand cases per annum.

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**The French System for Return to Civilian Life of
Crippled and Discharged Soldiers**

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The French System for Return to Civilian Life of Crippled and Discharged Soldiers

I. INTRODUCTION

The methods followed by the French in returning men discharged from the armies to civilian life have *by no means reached a final form*. The war created in France many needs insufficiently provided for by existing social organization. Public and private energies immediately produced a host of new bodies designed to meet those needs (Appendices B and D); while they have done so, often well, it has become very evident that the functions with which they are concerned would be more advantageously fulfilled were the energies of which they dispose employed with better system. Various Bills have been proposed with the object of securing so desirable an end (Appendix G); they are being considered by the French legislative bodies and some of them will surely become law (Appendix G-54).

As a rule, the laws by which France secures the return of her soldiers and sailors, disabled or sound, to their homes are in harmony with the republican principles which underlie her constitution. At times, however, expediency or conservative respect for tradition has made it difficult for French legislators to secure an ideal adherence to those principles in the drafting of existing or proposed statutes. So it is that, at present, the laws governing the return of soldiers and sailors to their homes from the French 'Armies of Land and Sea' are still in a period of active change. Some of them will be abolished or altered; others may persist; and, certainly, new laws will be made to meet conditions at present regulated, insufficiently, or not at all. The intense desire, conspicuous everywhere in France, to do whatever may be best for the nation makes it probable that the legislation finally adopted will be ideal in its provisions; a Bill recently

adopted by the 'Chambre des Députés' (Appendix G-54) constitutes a strong promise that it will be so.

As far as possible, this report is impersonal. It is based entirely upon written (Appendices B, D, F, and G) or verbal (Appendices A, C, and E) information received from Frenchmen whose duties make them competent to express opinions on this subject with authority. Information has always been obtained from men, or commissions, entrusted with the work rather than from the titular heads of Ministries or of Departments. Consequently, while the report pretends to accurate representation of existing conditions it places in relief those methods which are considered most apt to the purpose for which they are designed. Gratuitous detail is avoided; but it is endeavored to give a coherent and comprehensive account of the main features of the situation in France and, especially, to indicate points where French experience may prove to be of advantage in suggesting measures suitable for Canada (See Section XVIII, page 37).

France has passed through difficulties which are only commencing to present themselves to Great Britain and to Canada. She has felt and reasoned her way to the methods most suitable for coping with them. It would be unfortunate were Canada not to take full advantage of the lessons which French experience so plainly points; but it will be found that, because of national differences, measures suited to France can not always be usefully initiated, without modification, in Canada.

The processes by which the return to his home of a discharged wounded or disabled soldier, or sailor, is secured may be divided conveniently into the following stages:

1. Active medical and surgical treatment;
2. Functional re-education,
3. The provision of artificial appliances;
4. Professional re-education;
5. Establishment in civilian life.

II. ACTIVE MEDICAL AND SURGICAL TREATMENT

For military purposes the territory of France and her colonies is divided into twenty-one military regions. Each region has an organization of its own, complete in itself; this fact is taken advantage of in many ways in arranging for the return of soldiers from the armies to their homes.

It is estimated that about 30 to 40 per cent. of the men composing the French army will be admitted to hospitals because of disease or wounds. Active medical and surgical treatment is given to soldiers by the French Medical Service, in a host of hospitals. Hospitals may be established by military authority, by civilian authority, or by the efforts of private benevolence; hospitals supported by private benevolence may be maintained either through individuals or through societies such as those constituting the French Red Cross Society (Appendix D-62). All of these hospitals are under the Minister of War (Service de Santé).

In addition to general hospitals, institutions for special purposes, such as the treatment of skin diseases or for the repair of injuries to the teeth or jaws, have been established by the medical service when and where they have been required.

Among the most important of the special hospitals are the orthopedic centers. As it happens, there is one of these in each of the army regions which, for military purposes, divide France into twenty areas. Their situations, however, were chosen primarily so that communication with the manufacturers of artificial limbs might be easy. Since many of the manufacturers are in Paris, it follows that several orthopedic centers are in Paris, or near it. Cases requiring orthopedic treatment are sent to these centers from the area which each serves.

The military hospitals established in the 'Asile National des Convalescents' at Saint-Maurice (Appendix A-10) and that established in the Grand Palais, Paris (Appendix A-6), are examples of orthopedic centers. They draw their patients from hospitals in the neighborhood

of Paris. They are equipped with the staff and appliances necessary both for performing any secondary operations of a special nature which may be necessary and for undertaking functional re-education.

Patients sent to the orthopedic centers are carefully examined and, if it is advisable, operations are performed. At first, it was necessary to operate on a considerable percentage of the cases of amputation, because of adherent scars and nerves, or because of insufficiently covered bones, or persistent infection, or similar conditions. The percentage of cases requiring re-operation is now much less—perhaps about two per cent. at the Maison-Blanche (Appendix A-7).

At these hospitals, the stump of every patient who has suffered an amputation is radiographed on his admission. The radiographs have been invaluable both clinically and as records. By them exostoses have been found to be remarkably frequent, especially in the femur; they often cause a stump to be painful. It has been found inadvisable, as a routine, to remove them at once since a dormant infection often has been lighted up by the operation and has resulted in unfortunate suppuration.

A very convenient way of recording the findings of the X-ray room in the patient's papers is to make a tracing of the skiagraph on tissue paper. Black is used for the outlines of the skin, blue for the outlines of bone, red for the outlines of pathological structures and red, blocked in, for foreign bodies. (The description of recent developments in medical science such as of the method by which a balanced magnet is employed for finding iron bodies in wounds does not enter the scope of this report.)

III. FUNCTIONAL RE-EDUCATION

Functional re-education is the term under which are grouped all of the means adopted to secure the existence of a maximum of its normal function to an injured part. Judicious *re-education* of a part injured *should be commenced as soon as is possible*; but, usually, it is not until active hospital treatment has done all that it can do that functional re-education is really commenced.

The nature of the treatment by which functional re-education is to be carried on is pre-

scribed by the responsible physicians and its progress is recorded and ensured by a careful system of documentation. Samples of the cards employed for this purpose are attached to the report (Appendix F-18, F-19). The orthopedic centers are equipped with devices for active and passive mechanotherapy, for treatment by galvanic, static, Faradic, and high-tension currents, by vibration, by baking and blasts of hot air, by baths of many kinds, by colored light, by massage and gymnastics and exercises of various sorts.

Opinion is most unanimous in condemning passivemechanotherapy and in insisting upon the value of active movements, initiated by the patient himself. The exercises first given are simple ones, requiring little effort, such as those commonly used in the re-education of tabetics. They are often of very great benefit to men who have lost poise and the habit of movement by confinement to bed or, often, by an amputation. The exercises for the leg comprise walking along lines, straight or irregular, stepping over obstacles of varying heights and shape, mounting or descending stairways with irregular treads; for the arms there are objects, such as balls or skittles of differing size, form and color, to be handled, and devices which require the hand to be put in various positions. All of these exercises are performed either voluntarily or at the word of command. In gymnasia, well-equipped with apparatus of all sorts, exercises are very commonly prescribed; although 'Swedish' methods are often followed, everything in gymnastics which can be useful is employed.

The machines necessary for the administration of mechanotherapy form a part of the equipment of the orthopedic hospitals. Most of the existing machines are actuated by force applied by the patient—active mechanotherapy; in a few of them the movements are actuated by force developed by an electric or other motor—passive mechanotherapy. Most of the machines employed are of foreign, usually Swedish design. A few of them, however, have been devised locally, either in whole or in part, by the physicians who employ them. The machines devised by Professor Amar (Appendix A-17) are not employed in many centers. It is very probable that their use will become much more general in the future; for they

are both cheap and efficient in achieving the purpose for which they are designed.

Among the various methods employed in functional re-education, most value, after the performance of voluntary movements of all sorts, is attached to the judicious use of massage and heat.

Many of the nurses and volunteers, male or female, who administer massage or other treatment in the hospitals have little technical knowledge. Steps have been taken to give them sufficient instruction to insure the proper discharge of the duties entrusted to them. The diagrams contained in an atlas of motor points produced by Professor Bergonie¹ have been found useful in electro-therapeutical clinics where trained assistance is not always easily obtained.

There is a strong opinion that *work*, properly selected and graduated, has a high psychic value and *constitutes the best possible* means of re-accustoming muscles to action—the physical part of *functional re-education*.² It is also the German idea. In many hospitals facilities for work of various sorts are provided by societies supported by private benevolence (Appendix C-3, C-4, etc.). One such society makes a specialty of providing materials and instruments for work and for instructing patients in their use; another, in addition, makes it easy for all patients to sell, at a good price, anything which they produce. Light work for the army, such as the making of bags and flares, or the hemming of towels, is done in hospital workshops.

The value of the work done by these societies, especially in maintaining a good frame of mind and a taste for work in the patients, is very real. There is little foundation for the criticism that they create an inclination in the men to take up minor occupations, by teaching insignificant employments and by securing exorbitant prices for

¹ Atlas de points moteurs, par le Professeur J. Bergonie, de l'Université de Bordeaux, publié par les Archives d'Electricité Médicale, 6 bis, rue du Temple, Bordeaux (Gironde).

A copy of this Atlas has already been sent by the D.M.S. Canadians, to Granville Hospital, Ramsgate.

² The resolutions expressed by the Inter-Allied Conference (Appendix G-78) make it quite clear—as do publications in Great Britain—that greater benefit may be obtained from useful work, carefully prescribed with due respect to therapeutic effect, than from either gymnastics or, much more so, from mechanotherapy, active or passive.

objects of little real value, because they are made by wounded soldiers. That will never be the case; since, even at the present, the return (about 2-4 francs) obtained from a day's work at basket-making, or any other of the, usually, recreative occupations taught in the hospitals, is less than the return which can be earned at a standard trade. Quite apart from their value in accustoming muscles long idle to constant movement, the minor occupations taught to disabled men in the hospitals do great service; they keep the attention occupied and, partly because they provide a means of earning a few cents daily, awaken and preserve a desire to be again producing and earning a living wage.

Not the least of the advantages of work done in hospital workshops under the direction of medical men is that it furnishes an early opportunity of observing the patient's aptitudes and, consequently, facilitates the making of a sound and early choice of an occupation for him.

The creation of a proper outlook and spirit of cheerful hope in the patients is considered to be one of the most important parts of functional re-education. Wounded and disabled men depressed by suffering and by knowledge of incapacity, are often downcast; they easily believe that they can never again become self-supporting; and a man who would willingly be independent becomes able to see no escape from a life-time of dependence upon a pension. There are, unfortunately, some whose wish, and intention, it is to be always so dependent. Every effort is taken to convince men that, even though they are disabled, they can and must by appropriate re-education, become able to support themselves. Private societies do useful service in this respect, by providing work in the hospitals, by the counsel of visitors enrolled for the purpose, and by advertisements stating the intention of the societies, both to assist men who wish to learn how to support themselves and to help men in establishing themselves in civil life. The Government has ordered its physicians and nurses to do all in their power to convince patients under their care that they can and should become self-supporting. It is their duty to inform patients of the measures designed by the Government for finding employment for disabled

men, and, when necessary, for making them employable.

It has been realized that the best means of securing, in the hospitals, a proper frame of mind and understanding concerning the position of wounded men and the measures to be taken for their benefit is to secure a proper understanding of these questions to the general public.

Much has been done to educate public opinion to a proper understanding of these matters. Many articles have been published by men whose names command respect; many lectures have been given, many speeches have been made by those whose words are received with attention; exhibitions of work done by disabled men have been and are about to be held; articles manufactured by soldiers in hospitals and in centers of re-education are exposed for sale by various societies in every city of France. By these means, by the distribution of picture postcards, illustrated pamphlets (Appendix G-82), and by the exhibition of cinematographic films, much has been done to familiarize the French with the idea that a man disabled by his wounds is still able to work, and can, and must learn to be self-supporting in the measure of his capacity for doing so.

Statesmen and men of letters alike have used their influence, by voice and pen to assist in the spread of a proper understanding of the circumstances surrounding the return of a disabled soldier to civilian life. Hardly a day passes without something said or written by them with careful prominence; so thoroughly have they done their work that there can scarcely be any one in France capable of reading or listening who has not had clearly placed before him an accurate statement of the principles which must govern the measures adopted by France in providing for those who have been her defenders.³

Attached to this report are examples of the posters and postcards used by bodies—public or private—concerned with wounded soldiers, in order to convey a knowledge of their service both to the public and to those whom they attempt to benefit. (Appendix F-31-35.) There are many

³ At the Inter-Allied Conference (Appendix G-78) much stress was laid upon the importance of securing a general public appreciation of all of the factors entering into the replacement of disabled men in civilian life.

such postcards; their use and distribution constitute a valuable means, especially in France where postcards are so commonly employed, of advertising the work of the bodies which issue them.

Cinematographic films dealing with subjects connected with the war have been taken by commercial firms, by private persons and by the Cinematographic Department of the Army (Appendix A-16).

Two films illustrating the re-education of disabled men have been produced by Pathé Frères. One describes the work done in the École Joffre at Lyons (Appendix A-4), the second film illustrates work done in Paris and at Saint-Maurice (Appendix A-10); the latter has been ordered for the D.M.S., Canadian Contingents. Both these films are called 'Rééducation des Grands Blessés' and each measures 270 metres in length. These films can be obtained and seen upon application to Pathé Frères at Cinéma Limited, 103-109 Wardour Street, London, England, or at 30, Boulevard des Italiens, Paris. A list of the films produced by the Cinematographic Department of the army is attached to this report (Appendix A-16); a list of the titles of the Department's film illustrating l'École Joffre is also attached. The Department's film on this school is the original of that issued by Pathé Frères and it contains 430 metres. Two copies of it have been ordered with French and English titles respectively for the D.M.S., Canadian Contingents.

Lantern slides illustrating Professor Amar's work (Appendix A-17) have already been sent by the D.M.S., Canadians to Granville Hospital, Ramsgate. They were obtained with Professor Amar's permission, from the professional photographer who took them, Sartony, 45, rue Laffitte, Paris, who does all of Professor Amar's photographic work.

The knowledge that it is greatly to the advantage both of themselves and of the State that disabled men should undergo a course of professional re-instruction has become general, thanks to the measures mentioned in previous paragraphs. One result is that the percentage of men who ask for re-education is very much greater now than it was a few weeks ago. At first, many men,

(about eighty per cent.) refused re-education, among other reasons, because they feared that their pension would be reduced if their earning power were increased by the acquisition of a new occupation; the Government has removed that fear by the definite assertion that the amount of a man's pension depends not upon his earning power but upon the extent of the incapacitation resulting from his disability (Appendix G-54).

IV. PROVISION OF ARTIFICIAL APPLIANCES

The supplying of artificial limbs to those who have suffered an amputation is a very serious question, since the war has created between forty and fifty thousand such persons in France; there were approximately 30,000 at the commencement of December, 1915. It is stated that from about two and five-tenths per cent. to three per cent. of the Belgian wounded have suffered amputation. At present, it is estimated that artificial appliances of some sort will be required by about one per cent. of the wounded.

It is recognized that the State must supply and maintain in repair, any artificial appliance necessary for the reconstitution of a disabled man's infirmity. It is also recognized that the appliance must be of the highest quality and the one most apt to its purpose.

The 'Commission d'Orthopédie de France' (Appendix A-15) has been established for the purpose of making certain that the limbs supplied by the State are of the best possible design and construction. Plans and specifications of the artificial appliances adopted by the commission are about to be issued and after the first of June all appliances supplied at Government expense must be of these patterns. The models established by the commission will be revised yearly.

In order to secure uniformity in the manufacture and supply of artificial appliances they are to be issued at only six centers in France; at each of these centers sealed patterns of the appliances adopted will be maintained for the use and guidance of manufacturing orthopedists.

The model types have been adopted after most careful study. Drawings and detailed specifications of the artificial arms were attached to this report; descriptions of other appliances

will be sent to the D.M.S., Canadians (Appendix E-1) as they are adopted.

The diversity of artificial limbs adopted by the commission permits a considerable latitude of choice to the orthopedic surgeons.

The orthopedic commission will establish types of appliances other than artificial limbs. Skull caps and plates of various types are being employed for the protection of those who have lost a portion of their cranium; and springs, of many designs, are used to replace muscles of which the use has been lost.

Of those whose limbs have been amputated about three-fifths have lost legs and two-fifths arms. The distribution of disabling injuries of the extremities is the reverse of this; more men are discharged from the army on account of disabilities of the arms than of the legs. The reasons for this state of affairs probably are that the legs offer a bigger target than the arms; and also that a man hit in the upper part of the body is often killed. Again, at the beginning of the war, especially, men hit in the arms were able to find their way to dressing stations where they received treatment by which their arms were saved, although often permanently injured. Those hit in the legs, on the other hand, lay on the ground until they were picked up by stretcher-bearers, often after a considerable period. They, consequently, only reached the hands of the surgeons when their wounds were infected and an amputation had become the only treatment possible.

When functional re-education is completed the stump of an amputated limb should have almost reached its permanent size and it should be ready for the fitting of an artificial limb.

According to French practice the first essential for the successful fitting of an artificial limb is to make a plaster model of the stump; upon that model the limb is built.

At the Maison-Blanche (Appendix A-7) it is considered that a permanent limb should not be fitted to a stump within three months, others say five months, after the final operation; and, whenever it is possible, patients, especially those who are to receive an artificial leg, wear a provisional limb for a time in order to harden the stump and bring it to its final form before a per-

manent appliance is fitted.⁴ When this cannot be done the practice is to reduce the size of the stump by massage and bandages. It is much easier to fit satisfactorily an artificial arm than a leg. Of course, although an artificial arm can be fitted more quickly than an artificial leg, it can never so completely replace the lost member as a well-fitted, artificial leg may do.

Formerly those who had suffered amputations and required artificial limbs were gathered together in depots, such as that established in the Maison-Blanche, until an appliance could be given to them. It has been found to be undesirable to do so, since the 'morale' of unoccupied patients rapidly deteriorates; now it is endeavored to supply artificial limbs, and other prosthetic appliances, to men while they are still inmates of an orthopedic hospital. Depots for men who have suffered an amputation no longer exists; functional and professional re-education commenced at the earliest moment possible, now proceed uninterruptedly until the preparation for the return of the men to civilian life has been completed.

At first, there was delay in the provision of artificial limbs, and, moreover, it is said that those furnished by the State were not good. As a result, many individuals and private societies commenced to supply artificial limbs of a good quality to disabled soldiers requiring them (Appendix D-2, D-7, D-11, D-13, D-32 etc.) Some of the societies continue to do so; although there is now, certainly, no need for their activity.

At present, the situation is that the State has requisitioned the output of every firm of any standing manufacturing artificial limbs in France. It has appointed an active and competent commission, the Commission d'Orthopédie de France (Appendix A-15) to establish the types of limbs to be manufactured by these firms and it bears the cost of furnishing only limbs of the types adopted by the Commission.⁵ Good workman-

⁴ At the Inter-Allied Conference (Appendix G-78) a definite recommendation was made that men suffering from amputation of the legs were to be given temporary pegs in order to facilitate the hardening of the stumps and in order to habituate them to the use of an artificial leg.

⁵ At the Inter-Allied Conference a resolution was made (Appendix G-78) that an international committee would be established for the purpose of coordinating knowledge concerning the best type of artificial appliances.

ship and the use of proper material in the construction of artificial appliances is secured by constant inspection of the workshops producing them (Appendix F-38). Boards consider the condition and circumstances of each man requiring an artificial limb; they decide upon the type of artificial appliance best suited to his needs and, when his apparatus has been fitted, a board of reception decides whether it is acceptable or not.

The consensus of opinion at present seems to be that the simplest artificial limb is usually the best; and it is admitted that the aim of an artificial appliance should be to remedy not the anatomical but the physiological loss.

The artificial arms supplied by the State are, roughly, of two types: first, there are arms of moulded leather terminating in wooden hands with movable thumbs for which a hook, ring, or other fitting can be substituted (Appendix F-38); and second, the steel arm, designed by Professor Amar (Appendix E-1; G-1a).

Arms of the first type have been supplied by the State from the beginning of the war. It is only recently that their construction has been standardized (Appendix F-38); by the Commission d'Orthopédie de France. They consist of the usual moulded-leather bucket, attached to the stump in varying ways, and of a substitute for the lost hand. At first, the artificial hand and various fittings supplied with these artificial arms had little practical value. It is hoped that the heavy forearm and claw designed by Professor Amar will be found to be more useful; the forearm consists of a strong rod, it is attached to the elbow by a joint permitting flexion and rotation; at the wrist a powerful pair of jaws is attached by a ball and socket joint; all of these joints may be fixed in any position. The jaws are so designed that they will hold, firmly, almost any tool, heavy or light; they can be detached and a wooden hand of the usual conventional type may be substituted for them.

The second limb (Appendix G-1a) is constructed of thin steel and possesses a hand with articulated fingers; the fingers are actuated, through a cable, by movements of the shoulders or, less often, of the chest. This arm is both cheap and light, and it will be distinctly more useful to those engaged in light occupations than

the ordinary artificial arm. It will be supplied, especially, to those who have lost two hands (Appendix E-1).

Possibly because the loss of a leg is of less economic importance than the loss of an arm, less attention has been paid to the devising of artificial legs. The type of leg hitherto usually supplied by the State has been, like the arms, made of moulded leather strengthened by steel and ending in a wooden peg or foot. A few have been made on the 'American' plan of hollowed wood covered with parchment. The peg-leg is held to be the most useful for occupations requiring the exertion of any force and, especially, in amputations of the hip. The artificial limb which tries to look like a real leg, or arm, may be useful, from an esthetic point of view, to those, such as clerks, whose occupation makes it necessary for their appearance to be normal.

In some of the types of legs which will be adopted by the Commission, it will be possible to fix, or leave free, the knee joint, and, when the day's work is over, to remove the ordinary peg and substitute for it an articulated foot. The disadvantage of the peg-leg for those, such as farmers, who must walk over soft surfaces has been partly overcome by the elaboration of a light sandal which can be clamped to the end of the peg.

Legs made both of leather and of wood will be adopted by the Commission. As a rule, it will be held that it is better to use a leather leg for a young and tender stump, and a wooden one for a hard, old, and short stump.

One of the best of the wooden legs examined by the Commission was made for himself and patented, by a young joiner who lost a leg in the war. He has devised a knee articulation by which the leg tends to become rigid and straight, when slightly bent, as in ascending a stairway, and by which it is naturally and quickly flexed to a right angle, if the knee be considerably bent as in sitting down.

No type of rigid leg has been established for provisional use in hospitals by cases who are waiting for a permanent appliance. This, like many other minor matters, is left by the Commission to the decision of the orthopedic surgeons.

When a man becomes dependent upon an artificial appliance he practically loses his means of livelihood if it be broken; for this reason, it is intended that each man who has suffered an amputation shall be supplied eventually with two artificial limbs, so that he will always have one in reserve ready for use, should the limb usually worn be broken.

The best makers of artificial limbs in France are:

Haran, 12, rue Lacépède, Paris.

Ph. Cauet, 119, Boulevard Richard Lenoir, Paris. This firm has patented and manufactured Professor Amar's steel arm.

Mayet-Guyot, rue Motorgueil, Paris.

Drapier & Fils, 41, rue de Rivoli, Paris. The head of this firm is M. Breton, who is also President of the *Chambre Syndicale d'Orthopédie de France*.

While insisting that an artificial arm can never be much more than a support, Professor Amar expects that his arms, especially the steel forearm and claw, will give useful service, the latter in even the heaviest occupations. He states that he knows, at present, of 111 armless men who are working successfully for ten hours a day, and are earning good wages in manual occupations. Dr. Bourrillon of Saint-Maurice (Appendix E-4) among others is, however, rather sceptical and inclined to insist that maimed men will usually get real service most easily from some simple device of their own design or from an apt use of their stump (Appendix E-11).

This opinion holds good for those who have lost legs as well as for those who have lost arms, and there seems to be some sound foundation for it. The frequency with which men use the stump of an amputated arm or leg for various operations and discard their artificial appliances while at work is remarkable.

Ordinary ingenuity quickly devises appliances for making easy operations which a mutilation has made difficult. For example, cobblers constantly employ a short crutch for supporting the stump of a leg, amputated above the knee, while they are at work; and they arrange a strap or a modified vice for holding boots when it is impossible to fix them between the knees as a cobbler usually does; again, at Tours and at Bordeaux, various attachments to artificial arms have been

devised for the use of one-armed letter-carriers, card-players, etc. Not infrequently, it is possible for similar ingenuity to alter the tools ordinarily employed in an occupation so that they may be used by an individual who has lost one or more of his limbs; for example, a simple alteration has been made in the ticket-punch used by conductors so that it may be attached to a coat and be conveniently used by a one-armed man (Appendix E-1).

The principle that the State should maintain in repair artificial appliances provided by it has been accepted; the means by which that principle is to be realized are still under discussion. Vexatious delays, among other inconveniences, would certainly result were a system inaugurated by which limbs, or other appliances, were sent for repairs to centers where State workshops were maintained for that purpose.

All things considered, the best plan seems to be to pay a fixed sum for its maintenance to those receiving an artificial appliance. The sum so paid will necessarily be a considerable one, something less than about one-fourth of the original cost of an artificial limb annually; since the life of an artificial limb, even when the best of care is taken of it, is but short.

The opinion of the staff at 'La Maison-Blanche' (Appendix A-7) is that a leather leg, for example, will scarcely last for three years, and that if it is not properly looked after, it may be practically worn out in less than a year. For that reason, alone, they prefer legs to be made of wood strengthened by a coating of parchment. Others, from their experience, are of the opinion that artificial legs should last for about four or five years.

The desirability of making artificial limbs of a strong and simple type, so that repairs will not often be needed and may be easily executed, has been borne in mind in the design of the limbs supplied by the Government. Orthopedic workshops and centers of professional re-education have been established where considerable numbers of men are being trained, and employed, in the manufacture of artificial appliances; at the end of the war, these men, returning to their homes, will be distributed throughout France. For these reasons it should, in the future, be possible to obtain all repairs, for an artificial limb

of a usual type, with little delay anywhere in France.

Full advantage is being taken of the opportunity for study afforded by the presence of large numbers of mutilated men in the institutions controlled by the State. Workshops have been established at several of the centers of re-education and at hospitals for the invention and manufacture of artificial appliances.

Laboratories and workshops intended, not for the manufacture but for the devising of artificial appliances have been established, for example, at Bordeaux (Appendix A-3) and at Lyons (Appendix A-4).

The manufacturing workshops at Saint-Maurice (Appendix A-10) are under the direction of an officer who is a member of a well-known firm manufacturing surgical instruments in Paris. His workmen, like himself, are soldiers. They receive twenty-five centimes a day and the total cost of their labor and maintenance to the Government comes only to one and one-half francs daily. Consequently, the workshop is able to produce artificial limbs at about one-third of the usual commercial cost of manufacture.

The many advantages of having a workshop capable of producing artificial limbs in connection with an institution where there are large numbers of men who have suffered amputation are obvious; it does much to insure the delivery of properly-fitting limbs to those requiring them within a reasonable period and makes it easier for the physician to be certain that his directions have been followed.

V. GENERAL PROFESSIONAL RE-EDUCATION

It is estimated that about 0.4 per cent. of the wounded will require professional re-education. Professional re-education is the term applied to the instruction given to disabled men in order to prepare them for the occupation to which their aptitudes and social circumstances make them most suited.

The importance of securing continuance of ability to be self-supporting to injured persons is indicated by the records of the social progress of injured workmen in Germany (Appendix G-33). A number of injured persons who had received

a monetary compensation proportionate to their injuries were traced. It was found that the social position of practically all had deteriorated who had not found occupation. This experience serves to illustrate the contention that the rehabilitation of an injured soldier can by no means be secured by the payment to him of a pension alone; to discharge its indebtedness to him the State must, in addition, make him employable, by appropriate professional re-education, and must help him to find employment.

The selection of a suitable occupation is of paramount importance to a disabled man; the choice must not be made lightly. In choosing—for a disabled man is not always capable of wisely choosing an occupation for himself—he must be assisted and guided by those who are expert in the estimation of abilities and in the advising of vocations.⁶ In choosing an occupation for a disabled man, the aim is always to select one in which, often because of superior training and knowledge, he will be able, in spite of a physical handicap, to support himself in competition with those who are sound in limb. Because mutilated men can never be the physical equals of those who are sound; it is necessary, if men disabled in war are to be made economically independent, to furnish them with the knowledge which will give them an assured position. It is expected that many, thanks to a thorough knowledge of the occupations which they have chosen, will become capable of directing others and of being small employers of labor. Many, indeed, in spite of their disablement will have a better economic position than they had before the war.

Because of the disability which forces him to think and be willing, if he is to earn a living at all, a disabled man often becomes an unusually intelligent workman; but no man, already handicapped by a disability, should be permitted to take up a trade which can never give a good return.

For many reasons, especially for their future well-being, it is necessary that the professional re-education of disabled men should be a sound one. At present, and for some time after the

⁶ At the Inter-Allied Conference (Appendix G-78) the importance of competent and well-trained technical advisers was insisted upon especially.

war, it will be easy for them to find occupation; a sentiment of gratitude and sympathy alone makes that certain. But that sentiment cannot survive for long. It will disappear in a few years after the war, when the economic struggle once more becomes keen. Sound workmen will not then consent to receive the same remuneration as disabled men, whose output is less than their own; nor will employers consent to pay the salary of a sound man to one who is incapable of doing a sound man's work. Especially, will it be difficult for a disabled man to compete with those who are sound when old age commences to still further reduce his already lessened capacity for work. In these circumstances, unless disabled men have chosen their occupation wisely and are masters of it, their position will become most unfortunate.

The first desires of a man discharged from the army are, usually, to draw what money is due to him, to get his pension, and to return at once to his home, his family, and his former occupation. This desire has been so keen in many men that they have refused to submit to professional re-education; indeed, misguided private benevolence has organized societies with the object of returning men without proper discrimination at the earliest moment to their homes. The main excuse for doing so has been the desire of the men to return and a wish to prevent the possibility of a taste for town life being created in countrymen, detained during a considerable period of treatment at hospitals and centers of re-education situated in cities.

Since French opinion has not yet permitted professional re-education to be made compulsory, some of those requiring it still continue to return untrained to civil life. The proportion of the wounded now refusing professional re-education is much less than it was a few weeks ago; it is not long since only about twenty per cent. of those to whom re-education would have been useful accepted it. The result of the efforts made to educate the wounded and the public in the necessities of the situation surrounding the return of disabled men to civil life is commencing to be evident. The men now understand that they have a right to re-education, that it gives them great advantages, that it costs them

nothing, and that their pension will not be reduced if their earning power is increased by their re-education. An effort is being made, so as to avoid any possibility of a misunderstanding on this point,—to grant all pensions before professional re-education is commenced.

It is by no means necessary for all disabled men to receive professional re-education. There will always be many whose occupation or social circumstances will make it advisable for them to return to their homes and to the activities of their normal lives as soon as possible; this will be true, for example, of men of affairs possessing private means. But no disabled man should be allowed to return to his home, unless he has an independent income, until he is able to support himself.

In selecting an occupation for a disabled man the knowledge and dexterity already acquired in the exercise of a trade or profession should not be lightly discarded. It is estimated (Amar Appendix G-67) that about ninety per cent. of men disabled can be made capable of usefully performing either their former employment or some occupation directly connected with it. His experience is, that about 80 per cent. of men wounded can be re-educated and made capable of usefully following a technical occupation. About 45 per cent. of the wounded can earn a normal wage, if about 10 per cent. of these become specialists. About 20 per cent. of the wounded will only be able to earn part of the normal wage: Of the wounded contained in these first two groups 65 per cent. can be employed in ordinary workshops. Of the wounded 15 per cent. can only be made capable of performing small duties; for these, if for any, it will be necessary to establish special workshops for disabled soldiers. Only the remaining 20 per cent. of the wounded will be unable to support themselves; and some of these even, will be able to earn something. These will be sound, especially if, by a course of training, all those who have lost a right arm become left-handed; for example, a house-carpenter who has lost a leg may become a joiner; again, a lathe-hand may become a checker, overseer or store-keeper in a machine-shop.

The nature of the industries carried on in the neighborhood of a man's home has an important

influence upon the form of re-education which he chooses. Another consideration which influences the choice of an occupation is the constant desire of disabled men to return to an independent, selfsupporting life at the earliest possible moment.

The re-education of disabled men in occupations for which their injuries have not incapacitated them is by no means a new thing. Institutions for the re-education of laborers injured during their work have existed for years in Scandinavia, in Belgium, and in France. Petrograd and Munich, among other cities, had, before the war, institutions occupied with the physical re-adaptation to employment of disabled workers. The experience of these institutions has demonstrated that only those with expert knowledge are capable of accurately estimating the capacity of a disabled man for a given occupation and, consequently, that only they can wisely advise disabled men in their choice of an occupation. To do so, an intimate knowledge is required of the state and probable trend of the labor market and not only of the operations performed in the exercise of an occupation, but both of the way in which a man's injuries interfere with the performance of those operations and of means by which that interference can be removed, or avoided.

Although a distinction has been made between functional and professional re-education, they, with appropriate treatment and the provision of artificial appliances, are complementary processes; they should proceed side by side and should all be commenced as early as possible in a patient's treatment (Appendix G-54). Since this is so, it is obviously of advantage that the institutions in which active hospital treatment, functional re-education and professional re-education are carried on and in which artificial appliances are supplied should be as closely connected in space and in organization as is possible. In this respect the institutions at Saint-Maurice (Appendix A-10) constitute, as is intended, a model. There are some institutions in which professional re-education alone is given. It has been found to be very important to admit no one to such an institution until his treatment and functional re-education have been completed, and unless he

has received any artificial appliance which may be necessary.

Although the desirability of securing a sound instruction in a suitable profession to a disabled man is so great, a considerable effort, already alluded to, has been made in certain quarters to return men to their families at the earliest moment and to allow them to re-establish themselves and to acquire a professional re-education through the good offices of their neighbors. The only merit of this policy is that discharged soldiers are quickly absorbed in civil life; from what has been said, its dangers are evident and grave.

Many factors have governed the adoption of the methods now in force by which professional re-education is secured. Some of them have already been mentioned. Factors making it difficult to re-educate large numbers of disabled men in pre-existing educational institutions are the irregularity with which the men present themselves for instruction and the rapidity with which they learn. Ordinarily, all the pupils of a class in a technical school commence their instruction in a given subject at the same moment; disabled men present themselves by ones and twos as they become convalescent and capable of receiving instruction. The rapidity with which disabled men learn is very great; they are keen and anxious to be once more at work, they often know something of the matter in which they are being instructed before their admission to the school and usually, being better accustomed to reasoning, they learn more quickly than those who are younger. Men, without previous knowledge of the trade, become capable of earning a living as tinsmiths, tailors, or harness-makers in six months; within a year, men having only a fair primary education become competent clerks. To become first-class workmen requires a longer course of instruction, for tailors 15-18 months, for joiners and cabinet makers 18-24 months. It is probable that it will, in no case, be found necessary for a course of professional re-education to last for more than from eighteen months to two years, at the outside.⁷

⁷ At the Inter-Allied Conference (Appendix G-78) it was urged that every effort should be made to choose occupations for men which should not demand a period of training exceeding one year.

Four main plans are being followed in providing means for giving professional re-education to disabled men. They are:

1. The establishment of special schools (Appendix A-10, B-1).
2. The provision of lodging-houses permitting the attendance of men at existing technical schools or, as apprentices, at establishments or firms engaged in business (Appendix B-2).
3. Training schools established by guilds and similar organizations (Appendix C-5).
4. The payment of allowances to individuals in order to provide for their subsistence, at their homes or elsewhere, while undergoing re-education.

Each of these systems has its advantages and may be usefully employed. Often they will be combined in order to give elasticity to the operations of a center of re-education.

The first system, the establishment of special schools for the re-education of disabled men, has been found to be the one most generally useful; it has the merits of instructing thoroughly and quickly, and of maintaining sound habits in those whom it instructs. Because the need which they fill is a temporary one, lasting for, at most, only two or three years after the end of the war, much money should not be spent upon their organization or equipment. Full use should always be made of existing institutions and organizations. If the creation of machinery of a permanent nature should be necessary it should be designed so that it may continue to be useful after the immediate necessity which created it has come to an end.

The schools should be large; Bourrillon (Appendix E-4) is of the opinion that about two hundred inmates make a school of a convenient size. The school should be large, because it is only in large schools that many occupations can be taught. But no school can be large enough to teach all trades and, therefore, unless the nature of the subjects taught in the school makes it undesirable, it should be placed in or near a large city; since it is only in large centers of population that instruction and practice can be obtained easily in many of the more unusual and highly technical occupations. The number of schools established will be fairly great so that it

will be possible for men to be near their homes during their re-education.

The second system, the provision of lodging-houses for the use of men obtaining a professional re-education either at technical schools or by apprenticeship, is constantly used. Existing educational institutions are utilized, whenever they can be employed to advantage (See the latter part of Appendix B). Directors of technical and other schools have been invited to state the number of disabled men for whom they can establish special courses. These institutions have also been called upon to furnish and train instructors for the special schools established for the professional re-education of ex-soldiers.

It is necessary that those instructing disabled men should be especially competent both as technicians and as instructors; they must be trained teachers proud of their work and having a real sympathy for those whom they instruct. In order, by example, to stimulate hope and ambition in disabled men, it is desirable that their instructors should be specially trained men chosen from among their own number. Men who are to become instructors in schools yet to be established are being chosen from among the inmates and are being trained at existing schools, such as that at Bordeaux (Appendix A-3).

Hostels for lodging, and sometimes boarding, men undergoing re-education have been established by committees organized for that purpose in towns where centers of re-education exist. When it has been considered desirable that a hostel should be established, it has been suggested to the Prefect of the district concerned that a committee should be formed and made responsible for its creation and maintenance. The Prefect is responsible for seeing that those appointed to the committee are persons of substantial character. The Government assists these committees with funds in accordance to their needs; but their main resources are obtained by public subscription.

So far, the third system, re-education in special schools established by professional organizations (Appendix C-5, C-8), has not assumed large proportions. The advantage of educating men in schools of this sort, or by apprenticeship, is that employment is almost certainly assured them at

the completion of their course of instruction. The system of re-education by apprenticeship has, however, the very real disadvantage that men are tempted, by the ever present opportunity of earning a living wage, to abandon an opportunity of increasing their economic value, through additional instruction, for the immediate advantage of a regular, though small income. Also, the greed of an employer often tends to make an apprentice an ill-paid employee instead of a pupil. Nevertheless, it will often be necessary for men to become apprentices, either with or without having received previous preliminary instruction in a residential school, in order to obtain or to complete a training in some special employment.

The fourth system, the payment of subsistence allowances, cannot always be employed because of the difficulty, under some circumstances, of making certain that money so distributed is properly employed. One means of doing so is to provide for its payment, by employer or instructor, only to pupils who have done their work regularly and well. At present, the State grants subsistence allowances to their families but not to the men who are following courses of technical instruction; the allowances are also given by several societies and may be granted by centers of re-education (Appendix D-32, etc.).

Whatever system of re-education be employed, only those who express their willingness to submit to necessary regulations and are both anxious and able to take full advantage of the opportunity offered them should be permitted to commence a course of instruction. This is especially true of residential schools. Almost fatal damage to the success of an institution can be done by the presence in it of a few irreconcilable malcontents or of those who are incapable, either mentally or physically, of receiving instruction; persons of this nature should be refused admission to a school or, if they have been admitted, should be dismissed as soon as they are discovered. It is of importance for the successful working of an institution that the first group of students admitted to it should be of a high standard. Men should not be admitted to a center of professional re-education which is not immediately associated with a hospital until their wounds are healed and

they are sound and well in body and mind; it is usually desirable, by no means essential, that they should also have received their artificial limbs.

For the sake of the 'esprit de corps' which it lends, a uniform, either military or one special to the school, is sometimes worn. Save for those who have not yet been discharged from the armies, the institution relies for the maintenance of order upon its own, and not military, discipline. Each student realizes that he enters the school for his own good, that he is free to leave it at any time and that the severest punishment which can be given him for infraction of the regulations of the school is dismissal from it.

It is questionable whether it is desirable to allow men to visit their homes before their instruction at a center of professional re-education is commenced. Some maintain that those who return to their homes are persuaded by the influence of their families and by renewed contact with the realities of civilian life, to accept the economic advantages offered to them by an appropriate professional re-education; again, it is said that men who have had the satisfaction of a visit to their homes face a course of training, involving a further absence of several months and the restraint of a school, with all the greater willingness. The experience of others is that men who return to their homes become loath to leave them again and refuse to enter a center for re-education. Whatever is done, it is certain that professional re-education should be commenced as early as possible and that lack of occupation should never permit the habit of idleness to be formed.

From many points of view, it would be desirable, were it possible, to make it compulsory for all those requiring re-education to attend schools for that purpose. Up to now such a policy has not been initiated and it is sometimes said that public opinion would not permit its operation any more than it would permit a disabled soldier to be forced to undergo medical treatment by which his disability might be lessened or removed. However, it may have been in the past, opinion is now better instructed and it will soon be made necessary for, at least, those receiving pensions to undergo a course of professional re-

education when it is considered desirable for them to do so. In the same way, refusal to submit to an operation or other treatment which would result in a diminution of a disability is, already in practise, considered to be a sufficient cause for entailing a reduction of the pension to which the existing degree of incapacity would otherwise entitle the individual concerned. Nevertheless, at present, it is only in the measures followed in dealing with tubercular soldiers (See Section XIV, page 32) that compulsory treatment forms part of a definitely adopted policy.

At present, the status of those who are being re-educated at centers dependent upon the Government, such as that at Saint-Maurice (Appendix A-10), differs widely. Some of them are soldiers who are still undergoing treatment in the hospital; others, who usually will not again be fit for service, are on indefinite sick leave (*congé de convalescence illimité*); others have been found unfit for service by medical authority and are awaiting their discharge (*proposés pour réforme*); others have been discharged from the service with a pension (*Réformés No. 1*) or, rarely, have been discharged without a pension (*Réformés No. 2*).

The arrangements by which men receive payment for their work while they attend centers of re-education, are described on page 28.

VI. EXISTING ADMINISTRATIVE PROCEDURE

The control of men who have not yet received their discharge and are still under military discipline is, naturally, easy. It was anticipated in some quarters both that discharged soldiers would never voluntarily place themselves under the restrictions of a boarding-school and that, if residential schools were established, it would be impossible to maintain a strict, though reasonable discipline in them. Experience has shown that the residential type of school gives the best results, that the men attending such schools themselves appreciate the advantage of long days of uninterrupted work—the men welcome everything which brings renewed independence to them more quickly—and that they are not only willing to submit to the necessary regulations, but are anxious to maintain them (Appendix A-3).

It is desirable that men attending schools of re-education should have received their discharge and have been granted their pensions; but the fact that his discharge and the granting of his pension have not been completed should not be permitted to delay the accomplishment of any part of the process designed to make a man once again independent and self-supporting. There must be no unoccupied detention of men in convalescent hospitals or depots while the papers necessary for completing discharges or propositions for pension are prepared and collected.

When a man enters a school for professional re-education the first care must be to make a proper choice of the occupation which he is to follow. Before a choice can be made it is necessary that the man's capacity should be known. A statement of his economic, physical, and mental capacities is drawn up from his assertions, from the documents which accompany him and from the observations of competent observers. At the Belgian institution (Appendix A-9), for example, the Physician is responsible for a statement concerning physical aptitude, the Director of instruction for a statement concerning mental and physical condition, and the Technician for an opinion concerning professional capacity and aptitude. To arrive at a proper appreciation of a man's capacities is often a matter requiring some little examination and time; the choice of an occupation for him cannot be made wisely until that appreciation has been made rightly; and the choice, to be a sound one, must be arrived at after consultation with the man and must be one that is agreeable to him.

It is well that the Director of a center of re-education should be a medical man (Appendix A-3, A-9, A-10, etc.) possessing the special knowledge and ability which his situation demands; but it has been found, in practice, that the opinion of the Physician is not so important as that of the Technician in making the choice of an occupation; the psychological and economic factors are usually of more importance than the physical condition of the man concerned. As a rule, a physician is able to do little more than say that a man should not attempt to perform certain movements or operations of which he is no longer physically capable.

Experience has shown that men who have lost legs may practise almost any trade; but that they, especially those who have been amputated in the thigh, find it difficult to stand for long. An amputation of the left leg is especially troublesome, to joiners and shoemakers. Most of the men who have taken up farming, in any of its branches, are disabled in the arms. Good clerks are being made both of men who have lost arms, and of men who have lost legs.

Among the disabled men who have passed through the school at Saint-Maurice (Appendix A-10) about two per cent. had a very defective primary education; about one, to one and one-half per cent. of the Belgians (Appendix A-9) are illiterate. These figures give some idea of the justness with which the importance of providing courses of primary education at all centers of re-education is insisted upon. No disabled man, capable of acquiring it, should be allowed to be without a sound knowledge of reading, writing, and arithmetic.

In the arrangement of instruction at the centers of re-education, practice and theory are appropriately combined. As far as possible, useful things, which can be sold to the pupil's advantage are made in the workshops and, in the classes, the practical application of theoretical instruction is fully indicated.

The progress of pupils is watched carefully, in order to make certain that they are benefiting by the instruction which they receive and that the choice of occupation for them has been wisely made. At Bordeaux (Appendix A-9), the work and progress of pupils is recorded and followed by the Director by means of a complete system of workshop note-books and reports (Appendix F). At Lyons (Appendix A-4), more reliance is placed upon the opinion of individual instructors. Both systems doubtless have their advantages. The first enables the Director to exercise a very personal supervision; the second, more elastic, depends for its success upon the existence of a corps of competent instructors. Whatever the systems followed may be, as soon as it becomes apparent that the choice of occupation, for any reason, has not been made wisely, the situation is explained to the man concerned and dealt with as the occasion demands. If it is evident that he

is quite incapable of following the occupation which was first chosen, another must be tried.

When a pupil leaves a center of re-education a certificate of capacity, in his chosen occupation, is given to him. It is considered to be of the utmost importance that a high standard of efficiency should be maintained in those to whom certificates are granted, in order that employers may be safe in relying upon the competence of those possessing them. Although there are many 'light jobs' which will very properly be reserved for old soldiers, pupils are, as a rule, discouraged from taking anything but an employment where the salaries received are equivalent to the worth of their labor. If more is paid, it is in the nature of a charity; if less, it is an exploitation against which disabled men must be protected.

It is very desirable that pupils should go from their center of re-education to an employment; to secure employment for their inmates, many centers maintain an active employment bureau of their own. If pupils do not find employment so soon as they are ready for it, they are very apt to become discouraged and resigned to live in idleness on their pensions and on charity.

VII. PROFESSIONAL RE-EDUCATION OF THE BLIND

Trench warfare, which exposes the head more than the body has resulted in an unusually large proportion of head injuries and, consequently, of total or partial blindness among the wounded. It is estimated that there are at present about two thousand totally blinded French soldiers; if it be assumed that France has called four million men to the colors, it may be said that about five-tenths per cent. of her soldiers engaged have been blinded.

As far as possible, all men found unfit for service because of eye trouble are sent to the Ophthalmic Hospital which forms a part of the 'Hospice des Quinze-Vingts' (Appendix A-8, G-52). As a matter of fact, however, many cases are treated in outlying hospitals. Artificial eyes are supplied by the State to all who require them; a special hospital has been established for providing them.

A powerful society called 'Les Amis des Soldats Aveugles' (Appendix D-5) has opened a large and very efficient establishment for the

professional re-education of the blind as an annex of the 'Hospice des Quinze-Vingts'. This 'Maison de Convalescence' (Appendix A-8) has places for from two hundred to three hundred men; blinded soldiers also receive professional instruction, under less fortunate circumstances, in various centers of re-education (Appendix A-5).

It is insisted both that a blind man can be self-supporting and that the first thing to be done with a blinded soldier is to convince him of that fact. The good humor and the very evident spirit of active hope for the future existing among the inmates of the 'Maison de Convalescence' is proof that such a conviction has been given to each of them. Open pity has no place in this institution and the word 'blind' is never mentioned there. Its aim and that of similar institutions, such as the Association Valentin Haüy (Appendix D-63) is to prevent blinded men from returning to their homes until they have both learned to be blind and have acquired, at least, the elements of an appropriate re-education.

The first thing taught to patients entering the 'Maison de Convalescence' is to 'learn to be blind'. They are taught all the little tricks by which a blind man finds his way about with or without a stick. The devotion and care given by the staff to the inmates, especially to the newcomers who are 'learning to be blind' is very marked.

All the blind should learn 'Braille', the system by which they may read and write. At present there are not many books printed in Braille; but Ernest Vaughan (Appendix E-28) has devised a method of printing of great simplicity (Appendix G-53). One of its chief advantages is that type for the printing of books in Braille may be set by those who have a knowledge only of the ordinary alphabet. His method and the low price of his presses and type should result in a great lessening in the cost of books for the blind.

There are many occupations opened to the sightless. In choosing an occupation a blind man, like any other disabled soldier, should not be permitted to take up an employment in which he can never earn a living in competition with those who are sound. So it is that, as a rule, the blind should follow occupations which may be

carried on at their homes and which will not put them to the expense of transportation or of guides. It is for this reason that piano-tuning is not always a good occupation for a blind man. At the 'Maison de Convalescence' men are being successfully taught coopering, bootmaking, upholstering, chair-bottoming, brush-making, broom-making, telephone-operating, massage and typewriting; these trades do not by any means exhaust the list of occupations which the blind may wisely follow. They can, indeed, successfully perform almost any operation which does not require much change of place and does not require a constant perception of objects or of distances of a magnitude of less than, about, one millimeter.

The organization of the 'Maison de Convalescence' has been most carefully thought out. The members of the staff and the duties for which each is responsible are clearly stated in printed regulations. In addition, each member of the subordinate staff receives a card clearly stating his or her duties (Appendix F-10, F-11).

The careful thinking which produced the internal organization of the 'Maison de Convalescence' is characteristic of 'Les Amis des Soldats Aveugles' (Appendix A-1). In addition to providing a most excellent education to those coming under its care, it assists them to find employment and helps those who work at home to find a market for their produce. Moreover, the paternal care exercised by the society inquires into the family life of its wards and does everything that can be done to secure to each of them a comfortable and happy home. By means of a special organization the society keeps in constant touch with every man who has passed through its school; and the file, in the records of the society, opened for each man on his admission to the school, is closed only at his death.

VIII. PROFESSIONAL RE-EDUCATION OF THE DEAF

A considerable number of soldiers have been discharged because of deafness, rendering them incapable of performing their duties. In some cases the deafness is temporary, in others it is permanent.

Because many deafened have suffered from a form of deafness which is but temporary, rapid

cures have been accomplished, apparently, by various methods of treatment, for the efficacy of which extravagant claims have consequently been made. As a matter of fact, no new methods of extraordinary value for the treatment of deafness have been devised. The best method of doing so is, still, listening to the spoken voice coupled, naturally, with appropriate medical or surgical treatment (Appendix G-24-G-30).

Much can be done to lessen the disability suffered by those who have become permanently deaf. They must, of course, first of all, receive whatever complete medical treatment their condition may demand. Then, they should be taught methods by which, although their hearing is defective, they can both communicate with others and receive communications from them. One of the methods by which they may do so is the deaf and dumb alphabet; it is well known. It is not so widely known that the deaf can use spoken language to communicate ideas. They can do so by lip-reading.

All deaf soldiers, even those who are not very seriously deaf, should receive, at least, elementary instruction in reading the lips of those who speak. Those who have become, or are likely to become, so deaf that they cannot hear any voice should, in addition, receive instruction by which they may, as it were, read their own lips and learn to know, by muscular sense, when they pronounce their words correctly.

Because deafened soldiers have once spoken it is very much easier for them to learn lip-reading than it is for children who have never been able to hear; nevertheless, none but experts should be permitted to attempt to give them instruction in lip-reading.

While enough may be learned of lip-reading in a few weeks to be of the greatest usefulness to one who leads a simple life, a much longer course of instruction is necessary before one can become an adept. Soldiers must not be allowed to expect too much from lip-reading; it can be of wonderful value, but it can never be anything but a poor substitute for hearing.

There are in France several schools which teach lip-reading to soldiers who are deaf enough to require instruction. One of the best of them is the 'Institution Nationale des Sourds-Muets'

(Appendices A-11; G-24-G-30). It has been established for well over a century and its Directors have an excellent knowledge of the capabilities of the deaf and dumb. They know, from much experience, that there are many occupations in which a deafened man can usefully earn his living in competition with those who hear. Among the trades in which the deaf and dumb are particularly successful are the cultivation of the soil, printing, and tailoring.

IX. ESTABLISHMENT IN CIVILIAN LIFE: GENERAL

At present, disabled men have little difficulty in obtaining employment; all of the graduates of the Lyons school have been well placed and employers are constantly applying to it for assistants. Before the war there were more than 600,000 foreign workmen in France; most of them have left the country. Their absence, coupled with the mobilization of about four million soldiers—one-tenth of the population of France—has created a tremendous demand for labor, of any sort, in almost every industry. At the end of the war, conditions will change.

It is not anticipated that there will be a surplus of labor after the rush of those seeking employment at demobilization is over; but it is thought that before many years have passed, it will become increasingly difficult for a disabled man to obtain a desirable position, unless some special ability more than counteracts the incapacity resulting from his disability. Disabled men will have no difficulty in obtaining employment immediately after the war when there will be the greatest good-will towards them; the difficulty will come in several years when the way in which the disabilities were acquired has been forgotten and the fact alone remains, in the minds of the people, that there are thousands of men receiving pensions in France who, although so favored and less productive than sound men, are attempting to compete on equal terms with them. The possibility of such a difficulty is considered to be so serious that the question is now being discussed by an authoritative commission composed of delegates from Labor Unions and from Employers' Associations.

The centers of re-education will do their best to give exceptional ability to those passing

through them; but, there will inevitably be a considerable number of disabled men whose abilities will never be out of the ordinary. In order to secure an employment for these, various legislation has been proposed.

For five years after the war (Appendix G-45a), all positions, which it is shown by training and examination, that they can adequately fill (Appendix G-44, G-45) will be reserved for disabled men and their dependents (Appendix G-47), not only in governmental departments, but also in companies enjoying public concessions or subsidies; the number of men who are expected to receive governmental appointments is very considerable. Preference will be given to those who have large families and definite procedure is to be drawn up to give effect to the law. They will constitute about two-tenths per cent. of those wounded. There is no intention to give disabled men governmental employment which they are incapable of performing; to do so would give them no permanent advantage and would subject them to the contempt of their fellows. Propositions for laws further-reaching than this have been made; it has been suggested that all engagements under which working-men were employed shall be considered to have been merely suspended, not broken, by the war (Appendix G-51); it has also been suggested that all factories should be compelled to reserve a percentage of their employment for disabled men and that commissions established in each district should decide both what that percentage should be and the rate at which disabled men should be paid (Appendix G-46); there is little possibility that these latter proposals will be adopted.

Many of the societies supported by private effort and subscriptions have been active in finding employment for disabled men (Appendix D, introduction), and various official bodies have moved in the same direction.

It is now thought to be most undesirable to establish any system by which occupation will be offered to, or sought by, wounded men as a distinct class. It is felt that if employment bureaus are maintained for the use of disabled men alone, it will inevitably result in the wounded being treated as a special, necessarily

an inferior, class and that they will consequently be in danger of being offered a lessened wage. For that reason, it has been planned to extend and use the employment bureaus already established by the Minister of Labor for both disabled and sound men. In addition, the 'Office National de Placement des Réformés et Mutilés de la Guerre' (Appendix A-14) will, perhaps, be entrusted with handling the employment of disabled men in government positions and in Paris; and small employment bureaus where offers of employment will be received and filled, will probably be maintained, for their own use, at each of the centers of re-education.

At the outbreak of war there was no complete system of labor bureaus in France. Although a law passed in 1904 had made it obligatory for municipalities of more than 10,000 inhabitants to establish a municipal employment agency and for other communities to open a register of situations offered and wanted; only one hundred labor bureaus had actually been established.

The stoppage of industry at the commencement of hostilities made idle about two million workers in France; to them were added about one million persons, refugees from Belgium and from the invaded French Departments. The advantage which might be drawn in France from a proper system of labor bureaus was emphasized by the useful results obtained from the temporary agencies established, in this emergency, to find occupation for this enormous number of unemployed persons.

At the end of the war, it is expected that there will be many discharged soldiers without occupation; to their numbers will be added thousands who will be thrown out of employment by the closing of the munition factories. Some machinery must be provided for securing employment for these persons as well as for those who have been disabled by injuries received during the war. Whatever machinery be adopted, it must have branches throughout the country and these branches must be in close touch with one another. It is intended that the employment bureaus, already provided for by the law of 1904, shall be opened in every community. In each Department a central bureau is to act as an exchange for coordinating the work of all the bureaus in

that Department. At the end of December, 1915, the Minister of Labor desired the Prefect of each Department to establish a system of employment bureaus in his Department (Appendix F-30); the cost of maintaining them will be borne by the Minister of Labor. The plan upon which they are being organized has been inspired, in part, by the success of the British Labor Exchanges, (Appendix G-3); until they are established the Prefects have been instructed (Appendix G-32) to use existing employment bureaus in providing employment for returned soldiers. The Minister of Labor has also instructed his factory and other inspectors to assist the bureaus in their work by keeping them informed of establishments which are willing to give employment to ex-soldiers.

The operations of all bureaus occupied in finding employment for disabled men will be under the control of the Office National des Réformés et Mutilés de la Guerre (Appendix A-13). As time goes on, it is probable that the private societies, at present, attempting to find employment for ex-soldiers will gradually disappear, both because of official discouragement, and because of a gradual subsidence of the present keen public interest in the welfare of disabled men.

The Office National des Réformés et Mutilés de la Guerre is a permanent body; one of its duties is constantly to occupy itself with watching all matters affecting the interests of men disabled in the war. There will be much for it to do. One of the matters requiring constant examination is the occupations which might be followed by the disabled; it is certain that thought and experience, coupled with the modification of manufacturing routine or of existing machinery, will result in the opening up to men, lacking the use of legs or arms, of many occupations at present closed to them.

One industry in which official foresight is placing many disabled men is the manufacture of orthopedic appliances. The existence in France of perhaps fifty thousand men who will wear, and will require repairs for, prosthetic appliances of various sorts gives an opportunity for the creation of an important new industry. An artificial limb must usually be renewed at the end of a few years; in the meantime it requires

repairs. That the manufacture of artificial limbs is a profitable industry is evident from the fact that they are sold, at the current prices—between 200 and 250 francs for an artificial arm—for about three times the cost of their production. Considerable numbers of men are being trained as manufacturing orthopedists at the centers of re-education (Appendix A-3, A-10); it is well that this is so, if France is to keep the supply of artificial limbs for her wounded in her own hands, because, already, German manufacturers of artificial limbs are sending out circulars touting for business in France!

The Government fully appreciates that France is, above all, an agricultural country. It does everything possible to direct discharged soldiers to occupations connected with the cultivation of the soil. The agricultural schools have been opened to them; and a law has been proposed (Appendix G-39) suggesting that the State should give to suitable disabled men financial assistance enabling them to acquire rural properties.

Soldiers who, often after a course of re-education, are ready to assume their chosen positions in civilian life will frequently require assistance in order that they may be established, ready for work, in their workshops or on their farms. The artisan will require tools, material, and money to secure his subsistence until his business is established; similarly, the farmer will require help in purchasing live stock, tools, and seeds before he can commence the cultivation of his land. At present, artisans can obtain small loans, without security, from various societies such as the 'Aide Immédiate aux Mutilés et Réformés de la Guerre' (Appendix D-2) or the 'Association pour l'Assistance aux Mutilés pauvres' (Appendix C-1). Farmers are able to obtain assistance from various 'Land Banks'. As a rule, those who have passed through a center of re-education will not require so much assistance as those who have not done so. It is part of the policy of most centers to assist their pupils to earn and to save money, so that they may have a small capital when they leave (See page 30). In addition, some schools give their graduates an outfit of tools. It has been proposed that a special bank should be created for the

purpose of providing financial assistance for men who require it on re-entering civilian life.

There will inevitably be a comparatively small number of discharged soldiers who, although receiving pensions, will be incapable of looking after themselves entirely. It is the policy to allow men of this sort to be cared for, as much as possible, in the families of their relations or friends; their pension will be sufficient to bear the cost of their maintenance. Consequently, although institutional treatment may be necessary for some—violent maniacs, etc.—there will be no necessity for the establishment of old soldiers' homes. Indeed, it is anticipated, were such homes established, that there would be few men who would consent to enter them. The vast majority of the present armies are men accustomed to home life; the soldiers for whom a past generation established 'homes', like the 'Invalides', were professional soldiers who had spent most of their lives in barracks and had never had a home of their own.

It is possible, also, that it may be necessary for the State to establish a few institutions, maintained at a loss, in which disabled soldiers, incapable of earning a livelihood in commercial life, may be able to obtain a decent return for the labor of which they are capable. There is little to recommend workshops of this nature.⁸ They can rarely engage in an important industry for fear of being accused of unjustly competing with private enterprise; they are expensive and, from their very nature, it is impossible for their atmosphere to be anything but depressing (Appendix A-2; Appendix G-19-20). Certainly, they will not be established before the need for them is pressing.

Already two societies have been formed among disabled soldiers. They are the 'Union Fraternelle des Mutilés et Convalescents' and 'La Mutuelle des Blessés de la Guerre'. The first of these societies was organized to help ex-soldiers to obtain employment and to give assistance to those who are out of work. It

⁸ In order to supply occupation for disabled men who cannot possibly work in commercial workshops it may be necessary to establish special workshops. This will probably be necessary for epileptics and others suffering from major disabilities of the nervous system especially.

derives part of its funds, at least, from private benevolence. The second society has similar objects, but it is supported entirely by the subscriptions of its members. 'Aide et Protection, Société Nationale des Secours Mutuels entre tous les Mutilés, Blessés, et Réformés de la Guerre' has been established in Paris for the purpose of securing concerted action and mutual protection among disabled men. It is supported by members' fees and by accepting contributions by private benevolence. (Appendix G-79.) The 'Association Nationale des Mutilés de la Guerre' is another body with similar objects which has its head office at Paris. It is a powerful organization and has a very complete and ambitious program. (Appendix G-83, G-83a.)

At present, it is usually thought that there is no danger of ex-soldiers banding themselves in organized societies in order to secure privileged advantages by political action. It is possible, however, that certain individuals may endeavor, by generous subscriptions and other means, to secure a personal following among the members of such societies in order to further their own political ends. It is certain, none the less, that wounded men will be strong in insisting upon their rights; this fact constitutes an additional reason for securing an accurate appreciation in the national mind of exactly what those rights are.

X. ESTABLISHMENTS IN CIVILIAN LIFE: PENSIONS

When the war commenced, the compensation granted to soldiers and sailors for injuries received during their service was given in accordance with laws of long-standing, drawn up for dealing with men who were, in large part, professional soldiers and sailors (Appendix G-59, G-60, G-61). One of the most important of the Pension Laws is known as the Law of 1831.

The war had not lasted many months when it became apparent that the old laws did not fit present conditions and that it would be necessary to change them in order to make them meet modern needs; various measures have been proposed to that end. A most comprehensive scheme for the modification and readjustment of the Pension Laws has been brought forward by the Government (Appendix G-49). Its adoption

has been delayed because its provisions, in some respects, conflict with rights acquired by certain individuals under the old laws. It is, however, certain (Appendix E-18, etc.) that its main provisions will become law; and, whenever there is conflict with the old regulations, that the individuals concerned will be allowed to choose whether they will benefit under the old or the new law.

The principles underlying the pensions regulations are exactly those which form the foundation of the recommendations made in a Report of the Canadian Pensions and Claims Board sitting at Folkestone, England, to the Minister of Militia (Appendix F-36).

It is recognized that France is fighting a national war in which each citizen has an equal interest; it is, therefore, agreed that all detriments resulting from that war shall be equally distributed among Frenchmen.

There are many difficulties preventing complete realization of this principle in practice; but the intention to realize it, as far as possible, is evidenced in much recent legislation. For example, it has been decided that all losses suffered by those resident in the invaded French Provinces are to be made good by the State; again, much-discussed legislation is at present being passed through the Chambers with the intention of equalizing certain losses sustained in connection with real estate and rents in consequence of the war. Detailed mention of measures taken to secure the restitution of economic loss has no place here; the Pension Laws will be passed with the purpose of making good to disabled men losses which they have suffered through physical or mental detriment so that they shall not suffer more from the war than every Frenchman must.

Because men, medically unfit for service and discharged without pension (*Réformés* No. 2) required support, even although their disability was the result of disease not due to military service, it seems probable that temporary living allowances will be made to such men until, under the new law, they either receive pensions or become self-supporting. (Appendix G-73). The unfairness of contributing nothing toward the support of men who have broken down in

service, although their disease was not originated by service, has become apparent.

It is agreed that pensions are to be awarded to disabled men in direct proportion to the bodily incapacity resulting from disease or injury caused by their service. The degree of incapacity resulting from a given injury is estimated with the assistance of the '*Guide-barème des Invalidités*' (Appendix G-31); this 'Disability Table' has been drawn up by the Commission Consultative Médicale. It is largely based upon experience gained in the administration of the Workman's Compensation Act (Appendix G-62, G-63). It was composed because such a guide had been found to be absolutely necessary (Appendix E-25) in order to secure sound and uniform estimations of incapacity by the medical boards. Upon them is placed the responsibility of deciding the degree of incapacity existing in an injured man, and, consequently—since the amount of the pension depends directly upon the degree of the disability—of fixing the grade of pension to be awarded.

One or two incongruities in the table exist, because, in drawing it up, it was necessary to make it conform with the old pension laws; for example, the table, governed by the law of 1831, makes no distinction between the degrees of incapacity resulting from amputations of the arm above and below the elbow. (It is probable that in the pensions legislation such incongruities will be removed and that those who enlisted when former laws were in force will be permitted to choose under which code they benefit.)

The amount of the pension awarded depends entirely upon the degree of the disability. It is in no way influenced by social position or by previous earning power. A pension is the inalienable property of the individual to whom it is granted and it cannot be diminished by reason of any factor other than a lessening of the incapacity in respect of which it is granted.

A pension may be refused to a man whose incapacity is the result of an injury due to his own intentional act. In practice, although a man may legally refuse to submit to an operation involving the shedding of blood, an unreasonable refusal to accept a simple operation which would diminish his disability is made a reason for

estimating his incapacity at a lower rate than the existing disability would otherwise justify. It is also certain that, in the near future, the granting of a pension will, in some respect, become conditional upon the acceptance of professional re-education by those for whom re-education is held to be desirable.

A proposal to increase the amount of the existing French pensions has already been accepted (Appendix G-49; *q.v.*). It is probable that their value will be still further augmented in the laws finally adopted. The factor which will govern the amount eventually decided upon is that the pension granted in respect of a totally disabled man should be sufficient to secure a decent livelihood to him and to his family. (It is asserted that, in the country, a family owning their own house and a small plot of land can easily support—decently—a man, his wife, and four children on three francs a day.)

The compensations granted for injuries are of three sorts; a permanent pension granted for an incapacity which will not vary; a renewable pension granted for an incapacity which may become greater or less; and a gratuity, an assistance given once for all, to discharged soldiers, or to their dependents, who may require assistance and are not entitled to a pension.

It has been decided that governmental employees will be entitled only to whichever of the pensions will give them the greater benefit (Appendix G-50) when they have become entitled to pensions, as a result of injuries received during the war, both in the department in which they were formerly employed and under the regulations governing war pensions.

French pensions are, at present, paid quarterly, and in future they will probably be paid at shorter periods. Pensioners are often poor people, who live from hand to mouth. Consequently, it frequently happens that they find themselves without money before the next quarterly payment of their pension is due. Although it is illegal to lend money on pensions there are usurers who do so. It has been proposed (Appendix G-38) that a severe penalty be inflicted upon those found guilty of doing so. This law has been passed. (See Appendix G-38a.) This law prohibits advances of every description upon

the security of pension. Lender will be punished by imprisonment. Contracts made between claim agents and possible pensioners are null. The National Savings Bank shall have the right to make advances to pensioners. At the same time the temptation to borrow will be removed by permitting pensioners to obtain advances on their pension, under certain conditions, from the State through the Post Offices.

It is probable that this is the only respect in which anticipation or commutation of pension benefits will be permitted. It has, however, been proposed (Appendix G-39) that disabled men should be allowed to borrow money, on the security of their pension, from the State, on very generous terms—especially to married men—in order that they might purchase and become the owners of the land upon which they settled.

XI. ESTABLISHMENT IN CIVILIAN LIFE: INSURANCE

A disabled man is often more exposed, by reason of his disability, to accidents than one who is sound; an accident often results in a more serious incapacitation to a man disabled than it would in one who was whole; and, lastly, the injury which disables a man often results in a lessening of the length of time for which he might otherwise have been expected to live—his expectation of life.

The following examples will serve as illustrations of the preceding statements. A man who has lost one eye is evidently more exposed to accidents than is one who has two eyes and whose field of vision is consequently wider. If a one-eyed man loses the eye remaining to him the accident which deprives him of it leaves him, not one-eyed, but totally blind; therefore, the incapacity resulting from that accident is greater than it would have been in one who had been sound and had had two eyes. There is no doubt but that the expectation of life of those who have suffered from certain diseases, such as rheumatism, may be reduced thereby. For these reasons, all forms of accident and life insurance, or of annuities, or of any operation dependent in any detail upon averages calculated for sound men, will cost more than they normally should to disabled men.

France has realized this and has recognized the principle that the increased cost of accident insurance to disabled men should not be borne by them. As a whole, no provision has been made for bearing the increased cost of annuities and life insurance; although there is a proposal that arrangements be made permitting pensioners to insure their lives on advantageous terms in favor of their wives.

Various methods of meeting the situation have been proposed. Although it is recognized, as a principle, that the increased cost should be borne by the State, it is probable that the method adopted will be to provide a fund, contributed to by employers of labor and by the Insurance Companies, and administered by the Minister of Labor, from which any excess in the cost of accident insurance to disabled men will be borne.⁹ (Appendix G-43-43a and 43b).

Very early in the war, Italy realized the necessity of assisting those who had been disabled by the war to secure re-employment in industrial establishments and it was decided,

1. That these disabled by the war who had been re-employed should in case of accident, be entitled to receive complete compensation for the accident without consideration of their pre-existing disability.

2. The insuring bodies who pay the compensation must in all cases pay the whole insurance.

3. To facilitate the re-employment of men disabled by the war the employer must not be asked to pay a special super-premium; but the employment of such disabled men, when the number is greater than a certain figure, must be taken into consideration as an element for the valuation of the risk for which insurance is claimed. The principle upon which this legislation is based is alike in Italy and in France.

In most countries it is recognized that increased cost of Insurance should be a charge upon the nation; a convenient method of distributing the

⁹ The legislation providing Accident Insurance for disabled men is quoted in full in the first annual report of the *Office National des Mutués et Réformés de la Guerre*. (Appendix G-69a.) The law (Appendix G-43c) is dated the 25th of November, 1916, and is called *Loi Concernant les Mutués de la Guerre, Victimes d'Accidents de Travail*. (See page 30 of the annual report, Appendix G-69a.) By the provision of this law employers are not liable for the proportion of any accident resulting from war disability.

cost among the collectivity is considered to be obtained by making the increased cost of the insurance a charge upon industries. (Appendix G-85.)

XII. EXISTING ADMINISTRATIVE PROCEDURE

When an infirm soldier or sailor is held, by the medical men attending him, to be no longer fit for Service, he appears before a Board (Commission de Réforme) as soon as his treatment has been completed.

If the Commission is of the opinion that the man should be discharged, a recommendation to that effect is forwarded to the Minister of War; upon his acquiescence, given by a body appointed for that purpose, depends the effect given to the recommendation. The discharge may be refused or it may be granted with a pension (*Réformés No. 1*), or without one (*Réformés No. 2*).

A man who has been recommended for discharge may be given sick-leave of indefinite duration while awaiting confirmation of his discharge—in order that he may not be unnecessarily detained in the hospitals.

In order to secure uniformity and a high standard in the work of the Medical Boards (Commissions de Réforme), it has been ordered that there shall be but four such Boards in each Army region. Each Board consists of two members—a surgeon and a physician; one of them should have had experience in the legal aspect of accident work in civilian practice. The Boards have the power to consult specialists and must sit at a hospital depot where every means for diagnosis is at hand. (See Ministère de la Guerre, Circulaires et Instructions Diverses, 15 Mars 1916; (Appendix G-75.)

In the district which it serves, each Board has alone the power to recommend men for discharge and for pension. It is the duty of the Board to see that the military and medical papers of those dealt with by it are in order; the importance of accurate documentation of those recommended for pensions is insisted upon. In order to prevent any possibility of mistaken identity, it is recommended that the finger prints of men recommended for pensions should form part of their papers. (Appendix G, Ministère de la Guerre, Circulaires et Instructions Diverses, 15 Mars 1916.)

Because there has been great delay in completing the papers of men proposed, for pensions or discharge, the responsibility for obtaining and maintaining a complete set of documents for each man has been placed upon the Medical Officer responsible, in each instance, for the treatment. A 'Pension Office' for the preservation of these papers is maintained in every hospital.

The system employed in the Army for recording the medical history of a patient is not a complete one, there is no 'Medical History Sheet' nor 'Medical Case Sheet'. In the Colonial infantry, however, a Medical Case Sheet ('Feuille de Clinique') is used; it is always retained in the hospital where the man was last a patient and can be obtained, on demand, from it. The Colonial Infantry also uses a document which serves the purpose of a Medical History Sheet (*Livret Militaire*). Many hospitals maintain excellent records of the clinical history of cases treated by them. The Inter-Allied Conference which met in Paris on May 11, 1917, expressed the strong opinion concerning the great desirability of keeping accurate detailed records of nervous disabilities (Appendix G-78).

From an administrative point of view, there are three stages in the return of a wounded soldier to civilian life: the first extends from the incidence of his injury to the end of his treatment ('Consolidation of the Injury'); the second, from the end of treatment to the liquidation of the pension; the third, from the liquidation of the pension to the acquirement of a self-supporting earning capacity.

The administrative bodies concerned with the activities of these three stages are the Ministers of War—or of the Navy—of the Interior, of Commerce, of Agriculture, and of Labor.

The precise limits of the influence of each of these Ministers has not yet been accurately fixed; there seems to be some difficulty in doing so.

In a general way, the control of the Minister of War—or of the Navy—ends with the completion of the discharge of a man from the Army or Navy.

The Minister of the Interior is responsible for the provision of centers of re-education and for the maintenance of men attending them; and that, although the center of re-education con-

cerned be established in connection with technical schools directly under the control of the Minister of Commerce, or with Agricultural Schools directly under the control of the Minister of Agriculture. As a work of assistance, each center of re-education is under the control of the Minister of the Interior; while, in technical matters, it is controlled by the Minister of Commerce, or of Agriculture, as the case may be.

The Minister of Labor controls all matters connected with the employment of men who are ready to assume a position in civilian life.

The manner in which activities connected with hospital or functional treatment and with the supply of artificial limbs are administered is sufficiently indicated in the sections dealing with these matters.

From an administrative point of view, centers of re-education may be divided into three types according to the way in which they are established and maintained: first, institutions under the control of the State (Appendix B-1)—Saint-Maurice (Appendix A-10) is, at present, strictly speaking, the only such institution; second, centers created by public bodies and attached to institutions giving functional re-education (Appendix B-3, B-5, etc.); third, centers supported by private initiative and unattached to institutions giving functional re-education (Appendix B-11, etc.).

The National Institute for the Professional Re-education of Disabled Men (Appendix A-10) is situated at Saint-Maurice. It is placed beside the Orthopedic Center established in the Buildings of L'Asile Nationale des Convalescents (this is a Military Hospital and is under the direction of the French Army Medical Service).

Connected with these two institutions is a workshop where artificial limbs are manufactured. In this way, secondary hospital treatment, functional and professional re-education, and the provision of artificial limbs are, ideally, carried out in closely coordinated institutions. The expense of the maintenance of men attending Saint-Maurice is borne by the Minister of War, or of the Navy, until they are discharged from their service; after discharge, it is borne by the Minister of the Interior.

Centers of re-education of the second type are established by public bodies such as a Department, a Commune, a Board of Trade, a Hospital, etc.

The body establishing such centers of re-education must supply the necessary buildings and workshops. The expense of maintaining them is borne in part, and according to its ability, by the body which establishes them, and partly by the State. The parent body receives its funds from subscriptions and contributions obtained from various official or private sources; the contribution from the State is paid by the Minister of the Interior. It is, of course, understood that the maintenance of undischarged men attending such institutions is borne entirely by the Minister of War, or of the Navy.

The contribution of the State will only be granted to approved centers. In order to receive official approval, it will be necessary for the centers to submit their projected budget, their program, and particulars of their organization. Detailed information will be required from each center concerning the number of inmates which it can accommodate, the trades taught, the manner in which instruction is given, the nature of the equipment, the duration of apprenticeship, prospective employment, the probable salaries to be gained, and so on.

The professional schools under the Ministers of Commerce and Agriculture come under this arrangement, whether they are attached to centers of functional re-education or not.

A considerable number of generous individuals or societies have organized centers of re-education of the third type. They will receive State assistance when it is thought advisable to give it; but the State will make no grant without having considered, and approved, full particulars concerning the center. The amount granted by the State will depend upon the importance of the center and the number of men which it teaches.

That the State has once made a grant conveys no presumption that it will continue to do so and the acceptance of a grant gives the State the right of inspection.

One of the great advantages of this method of organization is that it is exceedingly elastic and leaves full liberty of action to local authorities

who, inevitably, know best the type of re-education most suited to the needs of their own region.

Premises of considerable size are required for housing a center of re-education, capable of holding a few score men; the buildings, sequestered from the Catholic Church a few years ago, have been found exceedingly useful in providing accommodation for centers of re-education and for hospitals.

As a rule applications for admission to a center of re-education will be made by a disabled man, through military authority, to the Director of the Service de Santé of the region where he happens to be. Disabled men who have been discharged from their service and are at their homes may apply for admission to a center to its Director who will arrange the necessary formalities for them.

In making application, the nature of the trade which it is desired to follow will be stated and also the name of the center of re-education to which admission is desired. The right of decision as to where and when a man's professional re-education will commence rests with the Minister of the Interior; in case of need, application for admission to a center of re-education may be made to him directly.

The State pays the transportation expenses of disabled, blind and tubercular men to the institutions provided for their care.

Men not yet discharged from their Service continue to receive their pay as soldiers during their stay at a center of re-education. Those who are receiving pensions continue to do so. Those who are awaiting confirmation of a recommendation for discharge receive a subsistence allowance of one franc seventy centimes, daily; since, as inmates of a center of re-education, they are fed and lodged by the State, one franc twenty centimes of that allowance is retained by the center and fifty centimes (ten cents) is left to the man as pocket-money.

In order to encourage men to enter centers of re-education, the State promises to consider first the recommendations for pension of those who are undergoing re-education. For the same reason the State returns a part of the one franc twenty centimes retained to those who work

well; the sum usually returned is fifty centimes daily. A prize of the same amount is given to men already receiving pensions, whose conduct has been satisfactory. Of course, those who are working at a trade are paid for that which they produce in accordance with its value.

The amount given by the State to men working at centers of re-education is small. It is felt, in order to encourage men to do their best, that it should be larger. It is for that reason that the Lyons school gives one franc daily to each of its inmates who is not receiving a pension. Other centers place all amounts deducted from a man's allowance to his credit and return them to him when he leaves; some centers, in addition, add an equal amount from their own funds. Men are urged to save and to deposit their economies in a Savings Bank; one is sometimes established for that purpose in the center. If a man is careful and works well it is possible for him to have a credit of several hundred francs at the end of his course.

Several societies (Appendix D-2, D-13, D-32) give grants of as much as three francs daily to men attending centers of re-education. At one school, all the inmates receive three francs a day from one society; another granted an additional one and a half francs to those who were externes; a third society gave those who were married an additional fifty centimes a day. It is not desirable that this state of affairs should exist, among other reasons, because it gives the men wrong ideas of their economic value by permitting them to earn money too easily.

It is probable that grants will not be made by societies in this way for much longer; if for no other reason, because they will no longer be able to obtain the money to do so, now that the number of men attending centers of re-education is becoming large. Also, contributors are becoming poorer and chary of contributing to private societies; the view that the State should obtain, by public taxation, all the funds necessary for public services is becoming general.

In order to provide for the maintenance of the families of men who are attending centers of re-education, the government continues the separation allowances which were paid while the men, in respect of whom they were granted, were

soldiers; or, if a family has become entitled to a pension, subsistence allowance or pension, is paid, whichever is the greater.

It is being considered whether it would be desirable for the State to grant subsistence allowances to provide for the maintenance of men and their families after they had been prepared to assume a position in civilian life and before they had become established and able to support themselves.

For administrative purposes, centers of re-education are considered to be hospitals. Like hospitals, they receive from the State a grant of, about, one to one and a half francs, a day for each inmate.

The funds expended in connection with the re-education of disabled men are supplied by special budgets voted for that purpose to the credit of the Ministers concerned. The State makes certain that the work of the centers of re-education is properly carried out by the visits of Inspectors. As a rule, these Inspectors are men already employed, under the Minister concerned, to control the institutions to which the centers of re-education have been attached. So much goodwill and anxiety to do well is everywhere present that the Inspectors have not much to do; those maintaining centers of re-education eagerly accept advice from the Ministers responsible for their control.

The initiative in matters connected with professional re-education rests very largely in the hands of the Minister of the Interior. It is true that an Interministerial Commission, formed at his desire and meeting under his presidency, advises him, after discussion of matters placed before it; but it seems to be little more than a covering body, to be entirely under his control, and to have no initiative power.

It is intended that the *Office National des Mutilés et Réformés de la Guerre* (Appendix A-14) shall have the responsibility of securing a proper coordination of all matters connected with the return of discharged soldiers and sailors to civilian life (Appendix A-13, F-29, G-54).

The centers of re-education, existing at present, have accommodation for less than four thousand disabled men (Appendix B); should a greater number require re-education, it will be

necessary to increase that accommodation. Ample funds are forthcoming for that purpose; already four and a half million francs have been placed at the disposal of the Minister of the Interior. The cost of maintaining centers of re-education, such as those at Saint-Maurice and Lyons, (Appendix A-10, A-4) is, everything included, about five and a half francs per day per man.

The recommendation, made by a Medical Board (*Commission de Réforme*), that a man be discharged, with or without a pension, is sent for consideration to the Minister of War. At his office, the Commission Consultative Médicale makes certain that, from a medical point of view, the finding of the Board is a reasonable one. The final approval of a proposal to grant a pension comes from the Conseil d'État; this body has a special branch established to consider cases in which the pensioner is dissatisfied with the pension granted to him, or her.

The part played by public and private bodies in assisting disabled men to re-establish themselves in civilian life has been indicated in preceding paragraphs. It is considered desirable to utilize private benevolence in providing for the return of disabled men to civilian life, so long as its activities can be controlled and directed into proper channels by competent authorities. The unnecessary waste and useless expenditure of energy consequent upon the existence of numerous, small, ill-coordinated societies is fully recognized. Legislation is being designed to control both them and the terms upon which societies, or individuals, will be permitted to solicit or receive subscriptions. It is probable that only those which have been approved and have received permission to do so will be permitted to accept contributions and that those which accept them must submit to Government control and inspection. Already, the police have power to prevent subscriptions from being solicited by obviously unworthy collectors; and there is legal machinery by which charitable societies can be required to give account of funds entrusted to them.

It is possible that the official control may be provided by the establishment of a body upon which, in each Department, the principal voluntary organizations will be represented. (See Appendix G. Bulletin des Lois de la République

Française. First Section and Journal Officiel, 26 Janvier 1917 and 28 Janvier 1917.)

XIII. LIQUIDATION OF THE WAR

Not long after the commencement of the war, it became very evident to those who had competent knowledge that many changes would be made in the laws, regulations, and practices by which France had been accustomed to return her soldiers and sailors to civilian life; it is necessary to do so in order to secure harmony with the conditions surrounding the present war. As has been suggested in the introduction and in the preceding section, a new procedure is in process of formation and much new legislation is being considered or has already become law.

Whatever the procedure finally adopted may be, it is very certain that it will tend towards a realization in practice of the very definite democratic principles underlying French national organization.

A very able Report (Appendix G-41), by MM. Lefas and Masse (Appendix E-20), creates the phrase 'The Liquidation of the War'. This Report expresses the universal belief that the liquidation, the winding up, of the war is a matter of the very first importance. By the Liquidation of the War is understood all those operations which will be concerned in securing the reconstitution of normal national life at the end of the War.

To secure a proper liquidation of the war in matters connected with discharged soldiers and sailors alone will be a work of extraordinary dimensions; in order that it may be well done it is necessary that a proper organization for its execution should exist. Excellent legislation concerning this matter has been and will be adopted; but the existence of good laws and proper regulations will be useless if a competent organization is not provided to insure their operation. Urgent efforts to supply that organization are being made. It is recognized that it must be prompt and accurate in its work. While the public will realize its difficulties and excuse some slight delay in its operations, because of the enormous amount of work with which it must deal, no unnecessary delay, due to lack of forethought in its organization, will be forgiven.

In their Report, MM. Lefas and Masse classify the measures which they advise for securing prompt liquidation of the war into three groups:

1. A simplification of the records at present kept.
2. A simplification of the procedure by which pensions are now granted and paid.
3. The establishment of a central body, responsible for the administration of the whole question.

Matters included under the first heading are details to which it is unnecessary to refer here.

Under the second heading, it is pointed out that it would be useless to initiate an ideal organization in any one of the departments at present connected with the administration of pensions, unless similar improvements were made in the organization of all other departments concerned in the matter. Only by doing so can the desired expedition in the liquidation of pensions be secured.

The great bulk of the Report is occupied in a discussion of the matter referred to under the third heading.

The discussion is prefaced by observing that the mass of business is so enormous that it will be insufficient to merely increase the size of the offices and the number of the clerks employed, before the war, in peace time in dealing with it. It will be necessary to reconsider the whole question and to re-design the machinery formerly dealing with it in order to secure prompt and economical execution.

It is recommended that an independent pension service should be created. It is recommended that this service should be subdivided into eight or nine appropriate sections. It is recommended that this service (*Direction des Pensions et Secours*) should pay pensions to soldiers and sailors, and to civilians; it should also pay any gratuities given to indigent soldiers and sailors, or their dependents, who are not entitled to pensions. The amount of work which such a service would be called upon to do is suggested by the following figures:¹⁰

¹⁰In the five years immediately preceding the commencement of the war, France paid pensions and gratuities to the number of persons mentioned in the following table:

Invalidity pensions	460
Long service pensions	6,885
Gratuities on discharge	484
To widows and orphans	1,040
Assistance	50,000

It is estimated that already there are from 120 to 150 times more pensions to be dealt with than there were before the war; there are already about 1,800,000 pensions, for soldiers, sailors, and their dependents. The office which at present gives assistance to discharged men and their dependents, who are not entitled to pensions, expects to open, during the coming year, about 600,000 files and to pay out about 58,000,000 francs; in the following year it expects to be called upon to do about half as much.

The importance of dealing promptly and properly with the pensions question is insisted upon. There will be no village in France without its pensioners. The laws concerning the administration of pensions will be among the most important and the most discussed of the country's statutes.

The *Direction des Pensions et Secours* will form one of the main parts of the proposed organization; a 'Record Office' will form the other. There are several operations, at present looked after by different departments, which should be combined in a single organization. These are operations connected with the succession (wills and heirs) of soldiers, with the supply of information concerning soldiers, and with the keeping of their records. At present, about 1,024 secretaries are employed in looking after soldiers' successions; 1,150 are engaged in supplying information concerning soldiers (this department has about 3,000,000 names on its files); the accurate keeping of soldiers' records is most important, at present about 3,000 clerks are engaged in maintaining them. It is suggested that the Succession Office, the Information Bureau, and the Record Office should all be combined in a single organization.

The new Record Office would constitute a central depot where there would be filed, once for all, birth, marriage, and death certificates, and all information of any description bearing upon the service or status of the soldier concerned. Such a Record Office would form the center of the organization devised for the liquidation of the war. It would employ a very considerable number of clerks now and until a few months after the war; then their number would diminish rapidly, and—if the war is liquidated

successfully—in a year their numbers would be counted by tens instead of by hundreds. In Canada, the pensioning body, the Board of Pension Commissioners, should have the ultimate custody of personal service documents of discharged soldiers and sailors, just as in England the Commissioners of Chelsea Hospital—the British pension body—had charge of those for disabled and pensioned British soldiers.

If a central Record Office is established, existing procedure will be greatly simplified. For example, at the present time, on the death of a soldier it is necessary for his family to come in contact with no less than five different departments; this situation involves an unfortunate and an entirely unnecessary duplication of documents. If a central Record Office is established it will maintain a complete set of papers for each soldier and will give, to any department requiring it, complete information concerning any aspect of the individual for whom it is desired.

Not the least of the many advantages which the central Record Office would give would be a means of securing coordination between the Ministry of War, from which all pensions are now paid, with works of private benevolence. By making easy reference to its records, the central office would make it difficult for unworthy individuals to receive assistance, to which they have no right, from public or private sources.

Connected with the Pension and Record Offices would be a Director's Office (*Cabinet du Directeur*); the duty of this office would be to consider the higher questions of administration. It would follow the proposals for change in the pensions laws and other legislation affecting the interests of disabled men, which are certain to appear from time to time; it would also concern itself with financial questions. The Government is confronted now with the necessity of finding funds to pay the many hundreds of millions of francs worth of pensions already past due; the capitalized value of these pensions, alone, represents many thousands of millions of francs.

The Director's Office would take steps to make it certain that the pensions laws were properly administered and well understood by all, so as to make it difficult for scamps to attempt sharp practice in connection with them.

By the Director's Office, also, a close understanding and an active cooperation would be insured between the Government and many of the works of private benevolence which already, and in the future, will wish to provide assistance for disabled men and their dependents who may require it.

Lastly, since the duties of the organization proposed for the liquidation of the war are so great and so important, it should be given powers commensurate with its responsibilities.

Legislation containing an estimate of the personnel and material which the establishment of such an organization would require is already before the legislative chambers. The opinion of both the Senate and the Parliament seems to be favorable to it. The need for a central administrative body, empowered to control all matters connected with the return of soldiers and sailors to civilian life, is very generally appreciated, and the establishment of such a body is desired; whether the *Office National des Réformés et Mutilés de la Guerre* (Appendix A-13) with its departmental and local committees (Appendix G-72) will succeed in performing the functions designed for it remains to be seen. It will probably do so (Appendix E-29), although certain misunderstandings may, at first, impede its organization and operation.

Whatever the central administrative body in Paris may be, the carrying out of the measures adopted for the liquidation of the war will remain with executive bodies situated in the departments (the departmental and local committees mentioned above).

An example of the way in which it may be of advantage to secure the continued existence of centers of re-education, or of other bodies connected with the return of soldiers to civilian life, after the disappearance of the immediate need which created them is furnished by the school at Lyons. Many men are being trained there in the manufacture of toys. It is hoped that a part of the important trade in toys, formerly held by Germany, will remain with France at the end of the war. To be successful, the toy industry must be supplied with a constant succession of good designs. Its workers, who may often work at home—a great advantage to disabled men—

must be connected with some central body, from which they receive their designs, which markets the goods produced, and which performs those operations connected with the manufacture of toys which are best—most economically—performed by machines. It is intended, at the expiration of the war, that the Lyons school shall persist and provide such a central organization for the men which it has trained.

The desirability of providing re-education at the expense of the Government, for discharged, but sound men, who may desire it, has been discussed. It is probable that no move will be made in that direction beyond, perhaps, to facilitate for them entrance to the technical, commercial and agricultural schools now maintained by the Government.

XIV. TUBERCULOSIS IN THE ARMY

From the military point of view, a man is unfit for service so soon as he has been discovered to be tubercular. Since it is held, as a rule, that their condition cannot be proved to have been caused or aggravated by their service, tubercular soldiers are usually discharged without a pension (*Réformés* No. 2). This attitude is consonant with the ruling that the failure of the medical examination to detect disease in a man at his admission to the army is no proof of the non-existence of disease in him; the circumstances under which the medical examination is made and its usual nature easily permit it to be fallacious.

The administration wishes the laws to be liberally interpreted; but it holds that the State can be held liable for disease appearing in a man during military service only in the measure to which the disease can be shown to be due to that service. The precise period at which tuberculosis has been contracted can rarely be proven.

Considerable numbers of soldiers have been discharged as unfit for service because of tuberculosis; in order to care for them and to prevent them from becoming centers of infection on their return to their homes, the Minister of the Interior (Appendix E-6) has secured the establishment of sanitary stations (Appendix G-12, G-13). At present, thirteen stations have been established and twelve more are about to be opened; altogether they will have a capacity of about

2,000 beds. No patient will remain in a sanitary station for more than three months; many will stay for a shorter period. Consequently, it is expected that these twenty-five stations will be able to care for about 10,000 patients yearly. Cases of tuberculosis will not be admitted to 'centers of re-education'.

The object of the sanitary stations is not to treat tuberculosis, but to teach tubercular soldiers the way in which they should live so that they may not be a center of infection to those surrounding them. Far-advanced cases of tuberculosis will not be admitted to the sanitary stations; they will be cared for in existing institutions established for treating such cases. It is expected that a stay of not more than three months in a station will be sufficient to give a sound acquaintance with the precautions which a tubercular subject should take; but it is obvious that the instruction given in so short a time will not secure the sustained observance of the principles taught. For that reason, a *Comité Départemental d'Assistance aux Militaires Tuberculeux* will be organized in each department. It will be the function of this committee to do 'dispensary' work. It will visit the men, see how they live, and make certain that they have the means as well as the knowledge and wish, to live as they should.

As a rule, each station will be attached to an existing institution, such as a hospital; in this way its proper administration will be insured. The medical staff for the sanitary station will be selected locally. The nursing staff and personnel will be provided, largely, by *L'Union des Infirmières Visiteuses*. All the nurses and personnel serving at the stations will receive special instruction in their work at a chest hospital and at a sanatorium.

The 'dispensary' work, which must be done by the departmental committee in following up the men—to see that they live rightly—after they leave the sanitary stations, is most important. Especially competent men and women, *Moniteurs d'Hygiène*, must be entrusted with it.

It has been said that many of the soldiers discharged from the army for tuberculosis will not be pensionable. Consequently, the duty of caring for them devolves upon the civil and not

upon the military power. A soldier, discharged for tuberculosis, will be sent to a sanitary station by the military authority; if he has already been discharged from the army when his disease is discovered, he will be sent to a station by civilian authority.

From the nature of their functions most of the sanitary stations will disappear soon after the termination of the war. The expense of maintaining them is borne entirely by the State.

The organization and maintenance of the committee established in each department to follow up the cases after they leave the sanitary stations will be cared for by associations created for that purpose in each department, and dependent for their funds and personnel upon volunteers. Each departmental committee will organize subordinate committees in towns and villages.

A *Comité Central de Préservation Antituberculeuse et d'Assistance aux Tuberculeux* will probably be established in Paris in order to provide a coordinating center charged with the general considerations of the whole question. One advantage expected to result from this method of organization is that the machinery ordinarily used in combating tuberculosis among civilians will be stimulated and greatly strengthened.

The organization, briefly described in this section, is largely the work of M. Brissac, *Directeur de l'Assistance et de l'Hygiène Publique*, with the Minister of the Interior (Appendix E-6). A description of the work done by his department during the war has been published (Appendix G-II); it is, in part, what a department of public health might be.

XV. GERMAN METHODS

It is stated that Germany has forbidden all publications concerning prosthesis and functional and professional re-education. By private correspondence, however, something is known in France of what is being done for disabled men in Austria and Germany.

Centers of re-education have been established; for example, the *Verwundetenschule* at Düsseldorf, and a center of re-education at Vienna; the latter is said to accommodate 4,000 patients.

Orders have been given that mechanotherapy, as a rule, is to be discontinued, and that men are

to be put to work as soon as possible. What little mechanotherapy is practised is being done with Zander's machines. Work is prescribed, instead of mechanotherapy, on the principle that properly selected work constitutes the best possible means of functionally re-educating an injured body and of maintaining a proper mental attitude and willingness to be self-supporting in an injured man. Consequently, the nature of the work done by him is carefully selected for each individual by special medical men who consider both the aptitude of the individual and the nature of his injury.

Temporary artificial limbs, of even primitive types, are supplied as early as possible in order to habituate patients and stumps to their use. Full advantage is being taken of even the shortest stumps in the designing and fitting of artificial limbs; some of the arms supplied in Germany are fitted with a pair of jaws very much resembling those which form a part of Professor Amar's arm for heavy work (Appendix G-I, G-1a). In Austria, an artificial arm made of metal has been devised which much resembles Amar's arm for light work (Appendix G-I, G-1a). Limbs of standardized patterns are supplied in order to facilitate their repair or replacement.

Functional and professional re-education is obligatory for those requiring it. Disabled men are retained in the army until they have received their artificial appliances and until their re-education is complete. Only then are they discharged if it is obvious that they can no longer give service of military value; if they can do so, they are retained in the army and given work suited to their abilities. So it is that disabled men are very largely employed in munition factories where they work under the superintendence of overseers who are themselves disabled.

XVI. THE FRENCH NURSING SYSTEM

Before 1903 nine-tenths of the nursing in France was done by nuns. When the religious congregations were broken up by the government, it became necessary to create a body to do the work formerly done by them. The school established for that purpose at the Salpêtrière Hospital has produced a good many nurses—

some of them are said not to be quite of the type that nurses should be. Other training schools for professional nurses have been established; one is directed by Mlle. Chaptal, and another is maintained by one of the Red Cross Societies (Appendix D-62a).

The proportionate number of highly-trained professional nurses in France is less than in Canada, but the number of women who have received some training in nursing is very much greater. This is due to the organized system of dispensary training by which the women of France are, in theory, at least, trained for hospital service in case of war, just as the men, by their military training, are prepared for service in the army. The plan by which the *Secours aux Blessés Militaires* (Appendix G-56) trains women seems well-advised.

The conditions under which it is permitted to train women for the certificates granted by the society are strictly laid down; there are, at present, about sixty schools where training is carried on. Those who wish to be trained must promise, in the event of war, to serve in the society's hospitals. The society grants two diplomas: the first gives the title of *Infirmière*, the second that of *Infirmière-Surveillante*. The first diploma is given to those who have satisfactorily undergone a training during four consecutive months; the second diploma can only be obtained after two years' training done subsequently to the gaining of the first one.

The training comprises a considerable acquaintance with practical work, obtained by constant attendance at a hospital, and a fair amount of theoretical instruction. The diplomas are granted after comprehensive examination.

The peculiarity and chief advantage of the society's system is that training in nursing may be had by women who are living at their homes; they obtain their practical knowledge by attending hospitals during their free time. There are about 12,000 women, holding this society's diplomas, now at work in French hospitals; in addition to them about 10,000 women, members of the society, are employed in the hospitals as assistants.

The French War Office has recently created a corps of temporary military nurses (Appendix

G-57). They must be strong, healthy women of good character, and with sufficient knowledge to be useful as nurses.

XVII. SUMMARY

Definite principles have governed the creation and design of measures adopted by France in caring for her discharged soldiers and sailors.

France, with her whole strength, is fighting a national war; for that reason, the detriments incurred by Frenchmen are to be distributed, as equally as possible, among the citizens who compose France. This report considers only the rehabilitation of men who have suffered a personal detriment; discussion of the equalization of economic detriment is avoided.¹¹

To secure the equitable return to civilian life of ex-soldiers and ex-sailors who have suffered physical or mental detriment, as a result of their service, is a work of large dimensions. Like every other large undertaking, it can be accomplished best under the administrative control of a single central directing body, by numerous executive agencies, each closely connected with the field of its operations. The need for a central administrative body has been recognized, and partly met (Appendix A-14; Appendix G-54); it is probable that it will be completely met.

In the organization of the executive agencies (Appendix G-72) it is to be remembered that the rehabilitation of disabled men is, in great part, a temporary operation, and that permanent machinery should not be created for effecting it unless a permanent use for that machinery exists; therefore, existing institutions and public services are employed when ever possible in executing the various operations by which disabled men are cared for.

While it has been, and will be, necessary to profit by the operation of important works of private benevolence, laws are about to be made which will prevent the initiation of unsound

¹¹ The Resolutions adopted by the first Inter-Allied Conference (Appendix I) on professional re-education of disabled soldiers on May 11, 1917, laid stress on all of the points mentioned in this Report. Little that is absolutely new resulted from the conference, with the probable exception of recommendations that special hospitals for insane and neurotic soldiers should be established, such as that now existing at Oudes (Appendix G-78).

measures by irresponsible organizations dependent for funds upon private subscriptions. Private benevolence, indeed, should find no place in providing the advantages which disabled men should receive as a right from their fellow-citizens.

The interest of the men has been the first consideration in the designing of the methods adopted for returning discharged soldiers and sailors to civilian life; all measures have been designed with the object of returning the men in the best and quickest manner to an independent position in civilian life. Any delay in doing so, dependent upon administrative difficulties, *e. g.*, preparation of discharge or other documents—is rightly held to be inadmissible.

The procedure by which the rehabilitation of disabled men is effected may be divided conveniently into five stages:

1. Active medical and surgical treatment.
2. Functional re-education.
3. The provision of artificial appliances.
4. Professional re-education (Vocational Training).
5. Establishment in civilian life.

Although this division is made, it is, in a sense, an artificial one; since treatment, functional and professional re-education, and the provision of artificial appliances are complementary processes. They should all be carried out as early as possible in the progress of a patient; they will often be performed simultaneously. Consequently, they can best be carried out either in a single institution, or in special institutions closely allied in space and organization.

Such an institution, or group of institutions, is called a 'center of re-education'. Many centers have been established in France; those at Saint-Maurice (Appendix A-10) and at Bordeaux (Appendix A-3) have been organized as models. The importance of securing a proper, detailed organization in these institutions, from the commencement, is great.

The responsibility for controlling the treatment received by a soldier or sailor rests with the medical service of the army or the navy, until the soldier or sailor concerned is discharged. At present, the general rule is that soldiers and sailors are not discharged from their respective services until their functional re-education is

complete, and until they have received any artificial appliances which they may require; it seems possible that, in the future, regulations will make it necessary for men requiring it to accept not only medical and surgical treatment but also professional re-education.¹²

The responsibility of recommending the discharge of a man as medically unfit for service rests with carefully-instructed, competent, and perfectly equipped boards composed of medical officers belonging to and appointed by the French Army Medical Service. These boards have also the responsibility, both of deciding whether a disability results from service—and is therefore pensionable—and of deciding the degree of incapacity resulting from a pensionable disability. The pension awarded in respect of a disability varies directly with the degree of incapacity resulting from it.

It has been accepted as a principle, first, that each man requiring an artificial appliance is to receive the appliance, of the best possible type, best suited to his needs; and, secondly, that artificial appliances supplied by the government are to be maintained in repair and replaced, when necessary, by the government.

An Orthopedic Commission (Appendix A-15) has been appointed for the purpose of establishing the types of artificial appliances to be provided by the government. It is possible that the maintenance of appliances will be provided for by paying an annual sum for their repair to those using them.¹³

The choice of a future occupation for a disabled man is a matter of the greatest importance. It can be made, rightly, only by those who have a special competence in such matters, who are accustomed to estimate a man's aptitudes, and

¹² From a Report made by Sir Henry Norman (Appendix G-86) it is apparent that soldiers are being uniformly retained in the Service until everything that treatment and functional re-education can do for them has been done. The main reason for strict adherence to this principle is probably the desire to retain in Military Service all men who are capable of being employed advantageously; a consequence of the practice is to make the acceptance of treatment and training more nearly obligatory than it was before.

¹³ The Inter-Allied Conference (Appendix G-78) recommended that an International Committee should be appointed for the purpose of considering and making recommendations concerning orthopedic and other appliances designed for the assistance of disabled soldiers.

have a knowledge of existing or probable opportunities for occupation.

It has been accepted as a principle that the economic soundness of measures connected with the establishment of disabled men in civilian life must never be allowed to depend upon any feeling of beneficence toward them. The position of a disabled soldier must be an assured one and dependent in no way upon the goodwill or assistance of others.

It is expected that practically all discharged and disabled ex-soldiers and ex-sailors will be absorbed in the civil population and that it will be almost unnecessary to establish new 'Old Soldiers' Homes'.

The following are important matters connected with the establishment of ex-soldiers and ex-sailors in civilian life:

1. Provision of Pensions.
2. Assistance to Employment.
3. Advancement of Capital.
4. Increased cost of Insurance.
5. Settlement on the Land.
6. Watching the interests of Disabled Men.

The old pension laws, which existed before the commencement of the war, have been found to be inadequate. It is certain that they will be replaced by new laws (Appendix G-49, etc.).

The principles which the laws, finally adopted, will observe are definite. A totally disabled man must receive a pension permitting him to support his family in decency. Only the extent of the incapacity resulting from an injury determines the grade of a pension; neither social rank, nor earning powers, nor any other factor but the extent of the incapacity is considered. In order to assist Medical Officers in estimating the extent of the incapacity resulting from a given disability, a guide—a Disability Table—has been prepared for their use (Appendix G-31); it has been found to be indispensable. A disability is pensionable only in the extent to which it is due to, or aggravated by, military service. While, in theory, a soldier has the right to refuse an operation involving the shedding of blood; in practice, an unreasonable refusal to submit to an operation, which would result in the lessening of a disability, is held to be sufficient reason for the reduction of the pension to the amount which

would be awardable were the existing disability diminished by operation. Pensions granted in respect of a disability are the inalienable property of the grantee. They are paid quarterly and can be drawn upon, in advance, through the Post Offices.

Offices established by the Government will assist disabled men to find employment in every part of France (Appendix A-13, A-14, G-72).

Laws have been framed providing that disabled men, other things being equal, should be given preference over other applicants; for employment in Government Service and in any enterprise enjoying governmental concessions or assistance.

In order to provide for the support of the families of men who, perhaps during a period of from one to two years, are receiving professional re-education, the Government either continues to pay the separation allowance or pays the pension, whichever may be the greater. After re-education has been completed, financial assistance for himself and his family—it is already given by certain societies—will be required by the artisan to establish himself in his business, and by the farmer, who will require seeds, stock, farming implements, and something to live upon, until the return of his first season comes in.

It is recognized that accident insurance and life insurance, as a rule, must cost more for disabled men than for those who are sound.

The principle has been recognized that, when the disability is due to military service, the increased cost of insurance should be borne, up to a certain amount, by the State.

Up to the present, no procedure for relieving disabled men from the increased cost of life insurance has been made. A proposal to pay the increased cost of accident insurance from a fund contributed to by employers and by insurance companies will probably be adopted.

The desirability of settling disabled men on the land has been recognized and various laws have been proposed with the object of making it easy for them to acquire rural property.

Questions affecting discharged, perhaps disabled, soldiers and sailors (*e.g.* matters affecting pensions or land settlement) may become sub-

jects of discussion in the future in the Legislative Chambers. It is proposed that one of the functions of the Central Body, administering matters connected with the return of ex-soldiers and ex-sailors to civilian life, will be to exercise a general watch over ex-soldiers' and ex-sailors' interests.

Definite procedure has been adopted and arrangements made for dealing with cases of tuberculosis, with the blind, the deaf, and others requiring special treatment.

The French Nursing System has been successful in mobilizing many thousands of French women and in employing them usefully in the Military Hospitals.

In France, Government and Publicists alike have recognized the importance of securing a sound perception, in the general public, of the precise conditions in which ex-soldiers and ex-sailors will return to civil life. Many methods have been employed in doing so, and there can scarcely be anyone in France capable of listening or of reading who has not had an opportunity of becoming acquainted with the foundations of the measures described in this Report.

XVIII. MEASURES WHICH MIGHT BE ADOPTED BY CANADA

The measures appropriate to Canada, in caring for her returned soldiers and sailors, become evident if the principles which govern their creation and design are clearly established.

Canada is fighting a national war; for that reason, the detriments resulting to Canadians must be distributed as equally as possible among the citizens who compose Canada. This report considers only the rehabilitation of men who have suffered personal detriment; discussion of the equalization of economic detriment is avoided.

To secure the equitable return to civilian life of Canadian ex-soldiers and ex-sailors who have suffered physical or mental detriment as a result of their service is a work of large dimensions. Like every other large undertaking it is advisable that it be accomplished, under the administrative control of a central directing body, by numerous local executive agencies, connected

closely with the field of their operations¹⁴ (Appendix G-72).

In the organization of the local executive agencies it is to be remembered that the rehabilitation of disabled men is, in great part, a temporary operation and permanent machinery should not be created for effecting it unless a permanent use for that machinery exists; therefore, existing institutions, such as the Post Office, and other public services, are to be employed, whenever possible, in executing the various operations by which disabled men will be cared for.

While it will probably be necessary to profit by the operation of certain important works of private benevolence, measures should be taken to prevent the initiation of unsound measures by irresponsible organizations depending for funds upon public subscriptions. Private benevolence should find no place in providing for the advantages which disabled men should receive as a right from their fellow-citizens.

This section does nothing more than attempt to name the operations by which the equitable re-establishment of disabled men in civilian life may be effected. Certain suggestions as to the methods by which the execution of those operations may be secured are contained in preceding sections and in a report made by the Pensions and Claims Board of the C. E. F. (Appendix F-36).

1. *Central Administrative Body*

A central administrative body should be established with full power to control all matters connected with the return of ex-soldiers and ex-sailors to civilian life.

The need for such a body has been recognized in France; already, that need has been partly met (Appendix A-14; G-54) and it is probable that it will be completely met. In Canada, such a body does not exist, some of the functions which should be exercised by such a body are performed by the Military Hospitals Commission (Appendix H), others by the Medical Service, and still others by the proposed Pension

¹⁴Such a centralization of direction of matters connected with the return of members of the forces to civilian life is rapidly being accomplished under the Ministry of Pensions.

~~Commissioners.~~ The Board of Pension Commissioners was formed with exclusive jurisdiction over the administration of Canadian war pensions in September, 1916.)

2. Stages of Rehabilitation

The equitable rehabilitation of disabled ex-soldiers and ex-sailors falls into five stages:

1. Active medical and surgical treatment.
2. Functional re-education.
3. The provision of artificial appliances.
4. Professional re-education.
5. Establishment in civilian life.

3. Active Medical and Surgical Treatment

The Canadian Army Medical Service, already responsible for establishing the physical condition of a man at his entrance to and exit from the Canadian Expeditionary Force, should bear the whole responsibility of controlling,—not necessarily of giving—*all medical treatment (active or re-educational) received by men until they are discharged from the Canadian Militia (or Navy) or are granted permanent pensions*; no man should be discharged until his treatment and functional re-education has been completed and until he has received any artificial appliance required. The Canadian Army Medical Service should also be responsible for controlling both the treatment and the re-examination of men who are receiving renewable pensions.

In order to enable the Canadian Army Medical Service to meet these responsibilities, it will be necessary to supplement its present organization.

4. Physical Rehabilitation

Treatment, functional and professional re-education, and the provision of artificial appliances are complementary processes; they should all be carried out as early as possible in the progress of a patient; they will often be performed simultaneously. Consequently, they can best be carried out either in a single institution or in special institutions closely allied in space and organization.

5. Institutions Required

Special institutions for performing the functions mentioned in paragraph 4 will be required both in England and in Canada.

The decision as to the policy to be adopted in dealing with this matter depends upon many factors; that outlined below proceeds from the assumption that Canada is engaged, to a finish, in a national war. If that assumption be correct and if the war continues for but a few months longer, military service must become compulsory in Canada, in practice, as it already is, in theory, by the provisions of the Militia Act. In that event all the difficulties which are supposed to be dependent upon the voluntary system will disappear.

It is clear (see section on Professional Re-education, page 11) that for their own sake alone, quite apart from economic and administrative considerations, all men who can never again be fit for military service should be returned to Canada so soon as the journey can be made without detriment to their condition. Men who can be made fit for service should not be discharged but should receive appropriate treatment. An institution capable of caring for both classes of men should exist in England. It will often be that not until after several weeks, or even months, of hospital treatment, a man will be ready either to resume service or to be sent to Canada; functional and professional re-education should proceed during that period. Facilities must be supplied in England both for giving that treatment and for caring for disabled Canadian soldiers who elect to take up their domicile in Great Britain.

Until satisfactory arrangements have been provided, and are ready for operation, in Canada, the present method of handling disabled men at Granville Hospital and Roehampton may well persist.

An institution performing similar functions, though larger and much more complete in its organization, should be established in the neighborhood of Toronto.

Toronto is named because it is desirable that a center of re-education should be placed near a large city (see page 53). A city in Ontario is mentioned because greater numbers have been recruited in Ontario than in any other province; and it is desirable, as far as possible, that men undergoing re-education should be near their families and the locality in which they will probably find employment.

The Toronto institution should be a model one at which instructors might be trained for the

'Centers of Re-education' to be established in other provinces if, and when, they are required.

It is probable that 'Centers of Re-education' will be required in several Canadian provinces. It is difficult to make any estimate of the number of men for whom provision must be made. Any estimate is entirely dependent upon the nature of the fighting and is, therefore, easily invalidated.

The nature, number, and the size of the institutions actually necessary will depend entirely upon the nature and number of the casualties. Consequently the necessity for close coordination between the Director of Medical Service and whatever body in Canada control these measures adopted for the care of returned soldiers is very great; from his knowledge of the nature of the casualties admitted to hospital he is able to state—two or three months beforehand—approximately, the number and nature of the cases for whom accommodation in centers of re-education will be required.

After twenty months of war the French estimate that professional re-education is required for about four-tenths per cent. of wounded men.

Not long ago, Ontario had enlisted about 100,000 men, the western provinces about the same number, Quebec 24,000, and the maritime provinces about 22,000.

If Canada recruits 500,000 men not only will these figures be increased but their relative proportions will be altered. Consequently, while the first center of re-education might be established in Ontario, it will later become necessary to establish others elsewhere.

The existence of two languages and the diversity of occupations in the various provinces makes the establishment of provincial centers desirable.

The nature of the instruction given in each center will vary considerably according to the needs of the province in which it is situated. Assistance in planning the instruction offered by centers of re-education should be obtained from large employers of labor, and from existing technical schools.

In France, in anticipation of a greatly increased use of machinery in agriculture, much attention is being paid to the training of agricultural mechanics.

If posts in the Canadian Civil Service are to be reserved for disabled men schools for training them must be established. In the province of Quebec, especially, where the percentage of illiterates is high (Census of 1911, twelve and sixty-six hundredths per cent.), it will be necessary to pay a good deal of attention to primary education.

The number of centers of education which it will be necessary to establish in Canada possibly will not be, proportionately, so great as in France, because many

Canadian soldiers will return either to their previous occupation or to one connected with it; again, desirable though it might be, it will scarcely be possible—unless public opinion changes—to make professional re-education compulsory for those Canadians requiring it.

It might be advisable to arrange for the persistence of one or more centers of re-education as schools for the professional readaptation of working men disabled in peace time.

Although it is not necessary, it has been found desirable that the Director of a center of re-education should be a medical man who has special knowledge of the work carried out at the institution under his control.

6. Character of Appliances

Artificial appliances must be of the best possible type and be maintained in repair by the Government.

In order to forestall possible popular criticism an Orthopedic Commission, as in France (Appendix A-15), might be formed for the purpose of fixing the types of artificial appliances to be provided by the Government; in every case the policy would be to adopt the appliances best suited to the needs of the individual receiving them.

The arrangements made for the manufacture and distribution of artificial limbs will depend upon the number required; the French estimate that one per cent. of their wounded require artificial appliances. Eventually, each man will have two appliances so that, in case of accident, he will never be without one.

It is probable that the French Government will provide for the maintenance of artificial appliances by paying an annual sum for their repair to those using them.

7. Establishment in Civilian Life

Under this convenient heading are grouped the following operations:

1. Provision of pensions.
2. Assistance to employment.
3. Advancement of capital.
4. Increased cost of insurance.
5. Settlement on the land.
6. Watching the interests of disabled men.

8. Pensions

The pension question has been discussed in the report of the Pensions and Claims Board (Appendix F-36; page 61); it is quite certain

that new pension laws, and procedure, and machinery for securing their operation are urgently required.

The question has been considered by a Parliamentary Committee appointed on March 13 [Hansard; March 14, 1916, page 1, 777]. Its report has been presented to Parliament and adopted [Hansard; May 18, 1916].

Adequate penalties should be provided for infractions of whatever laws may be adopted.

The foundation, upon which the amount of the pension awarded should be based, is that a totally-disabled man should receive a pension permitting him to keep his family in decent comfort; it is held that the income of an average healthy laborer constitutes an amount sufficient to support him and his family in decent comfort.

The amount of the pension paid in respect of any individual varies directly with the extent of the incapacity for labor, in the general labor market, resulting from his disability.

In order to assist medical officers in estimating the extent of the incapacity resulting from a given disability, a disability table should be prepared; a copy of a short disability table (Appendix F-37; page 73) is attached at the end of this report. The use of such a disability table has been found to be essential in France (Appendix G-31).

In estimating the amount of a pension, no account is taken of the soldier's former occupation, social rank, or earning capacity; the degree of incapacity for general labor resulting from the disability is alone considered. A disability is pensionable only in the extent to which it is due to, or aggravated by, military service. It will, therefore, often be necessary to establish the origin of a disability by the evidence of those who were present when it was originated.

It would be proper (this statement is not argued here), in case of unreasonable refusal to undergo treatment, or re-education—which would result in a diminution of incapacity—were the amount of pension awardable to be correspondingly reduced.

Any pension granted in respect of a disability becomes the inalienable property of the grantee.

In order to prevent fraud, the finger prints of all soldiers and sailors receiving pensions should

be taken; it would be preferable were the finger prints of all men taken at their discharge.

9. Assistance to Employment

Occupations taught in centers of re-education must be chosen in accordance with Canadian conditions.

In Canada, manufacturing operations are standardized in big factories and machines are used as much as possible; in France, there are many small employers and handwork is much more commonly used.

It is probable, although the desirability of possessing a trade is evident, that many of the disabled Canadians will become clerks of various sorts—insurance agents, commercial travelers, checkers, overseers, time-keepers, etc.

Attempts to introduce special occupations, such as toy-making, for disabled men must be viewed with the greatest caution.

The economic soundness of any measure connected with the re-establishment of disabled men in civilian life must never be allowed to depend upon any beneficent feeling for them.

10. Preference in Appointment

Disabled men, other things being equal, should be given the preference over other applicants for all government appointments.¹⁵

France goes further and all companies enjoying public concessions will employ a certain percentage of disabled men; of course, it is not intended that men should receive public appointments which they are not competent to fulfill. It is estimated in France that about two-tenths per cent. of the wounded will receive Government appointments.

11. Placement Facilities

There should be established a system of co-ordinated employment bureaus covering the whole of Canada.

Existing public employment, or industrial, bureaus—Dominion, Provincial or Municipal—hitherto have not had a very wide usefulness in Canada. If a competent organization were provided, to find employment for those—disabled and sound—requiring it at the end of the war, it might usefully become a permanent institution.

¹⁵ On October 12, 1916, Order-in-Council, P. C., 2170 was passed, providing that in making appointments to the Civil Service preference should be given to returned soldiers.

To be of real value, any employment bureaus established must have the power of advancing the transportation of men who are travelling to appointments. An industrial survey is being made with the object of ascertaining the variety of occupations and number of positions which might be expected to be open to returning disabled soldiers; the survey specifically inquires the opportunity for employment open to men suffering from specific disabilities, such as the loss of an arm, leg, or eye.

12. *Advance of Capital*

Financial assistance should be *given* to men in order to support them, and their families, both while they are being re-educated, and until they are established in their occupations.

During professional re-education the separation allowance already granted might well be continued (See Appendix H). After re-education is completed the artisan will require tools, raw material, and something to live upon until his business becomes established; the farmer will require seeds, stock, farming implements, and something to live upon until the return of his first season comes in.

13. *The Increased Cost of Insurance, Resulting from their Disability, to Disabled Men Must be Borne by the State*

Accident and Life Insurance will both cost more to disabled men than to sound men. Since their disability is the cause of that increase, it must be borne, up to a certain amount, by the State. The fact that certain Canadian communities have arranged for life disability insurance for soldiers should be considered in this connection. Full particulars concerning the communities which have provided insurance and the precise terms of that insurance should be obtained. It is possible that the information may be on file in the office of the Chief Paymaster. It is certain that insurance has been provided by Toronto, Hamilton, Wentworth County, Oshawa Woodstock, Oxford County.

14. *Settlement on the Land*

Both France and England have proposed schemes by which disabled men are to be encouraged, and assisted, to become agriculturists.

A proposal to form 'Returned Veterans Colonies', in Canada, has been made by the Canadian Pacific Railway Company.

Canada must be prepared for the immigration of considerable numbers of men discharged from the Imperial troops. South Africa, New Zealand, and Australia have already commenced arrangements for receiving them; the Provincial Committee of the Military Hospitals Commission in British Columbia has suggested legislation to the same end. The Federal and Provincial Governments have devised generously assisted schemes for facilitating the settlement of returning soldiers and sailors upon the land (Appendix G-87a, G-87b, G-87c).

15. *Attitude of the Public*

In Canada, public opinion must arrive at a proper understanding of the conditions surrounding the return of ex-soldiers and ex-sailors to civilian life.

It is of the gravest importance that sound ideas concerning the situation created by the war should be general. If public opinion is sound there will be, to mention one advantage among many, no serious tendency among disabled men to remain entirely dependent upon their pensions.

In ensuring the spread of sound ideas every means of publicity—press, pulpit, posters, and picture-palaces—should be used with all possible enthusiasm and pertinacity. France has done and is doing so with admirable results.

The Inter-Allied Conference (Appendix G-78) advised that an International Body should be created for the dissemination of information concerning matters in any way affecting disabled soldiers. It was recommended that the body formed should issue a Journal.

16. *Protecting Interests of the Men*

The interests of disabled men must be watched consistently by some body entrusted with that duty.¹⁶

To do so might be a function of the Military Hospital Commission, or of the 'Ex-Soldiers and Ex-Sailors' Trustees'. There will be many questions, concerning ex-soldiers, in which the consideration of such a body

¹⁶ At the Inter-Allied Conference (Appendix G-78) there was made a recommendation that bodies entrusted with watching over the interests of disabled men in all countries should cooperate in order to secure the welfare of disabled men of one nationality who, later, go to live in allied countries.

will be of great advantage; e. g., pensions legislation, provision of employment, etc.

This section is not, strictly speaking, a part of the report. It is an attempt to indicate directly, some of the more obvious respects in which French experience

points to methods of action which might be found apt in meeting Canadian requirements.

A large part of Section XVIII is a repetition of Section XVII. There are, however, divergences and many instances in which additional matter has been added.

Appendices

APPENDIX A

Description and List of Centers of Re-education Visited and of Other Bodies, Dependent upon the Government and Exercising Functions Connected with Returned Soldiers, also Visited.

1. Les Amis Des Soldats Aveugles, Maire du XII^e Arrondissement, 130, Avenue Daumesnil, Paris.

The object of this society is to help soldiers blinded by the war. It assists them in learning a trade, in working at it and helps them to form a home.

It maintains a *Maison de Convalescence*, 99 bis, rue de Reuilly, Paris, which is an annex of the famous Parisian Hospital for the blind, *L'Hospice National des Quinze-Vingts*. This institution is most admirably organized and administered. There the society does everything for its charges that the best experience can suggest; in addition, its careful, personal attention to the condition of those coming under its care continues, after they have left the *Maison de Convalescence*, for as long as they live. The Society depends for its funds upon public subscriptions.

2. Ateliers Departementaux pour les Ouvriers Mutilés, Estropiés ou Infirmes, 64, Rue Arsenè Chereau, Montreuil-sous-Bois(Seine), Annex A., 13, Rue Planchat, Paris; Annex B, 91, Rue Campans, Paris.

These workshops were founded in 1899, in order to provide occupation for persons mutilated in civil life. They are maintained by the Department of the Seine for its own use at a cost of 250 francs per year per inmate. They employ about 500 persons of both sexes, who receive daily wages varying from seventy-five centimes to three francs, the average being one franc and a half. The rules of the workshops are generous.

The industries carried on are minor ones, such as mat and brush making, book-binding and locksmithing.

A hopeless lack of ambition among the inmates characterizes these workshops; it should be sufficient to condemn the suggestion that wounded men should be given employment in such institutions, even when established for them alone, so long as they are able to earn their living normally in the workshops of commerce. (Appendix G-19.)

Attached to the report is a statement of the terms of the establishment of these workshops. (Appendix F-8.)

3. École Pratique et Normale de Rééducation Professionnelle des Mutilés et Estropiés de Guerre, 15, Rue Montgolfier, Bordeaux (Gironde).

This school was established, both to teach disabled men occupations, and to train individuals as instructors for the other schools which are to be established for the re-education of ex-soldiers. Another function of the institution is the elaboration, both of new methods of conducting the re-education of disabled men, and of new artificial appliances for their assistance.

The school is attached to the orthopedic center of the district in which it is situated, and its Director is the Officer in charge of the service of prosthesis in that center. The by-laws of the school have been printed; in many ways, especially in the care with which the details of its organization and documentation have been worked out, it might serve as a model. (Appendix F-2-F-7, F-16.)

The school has been in existence for three months. At present it has seventy-eight inmates. This number will shortly be increased to 200 or more. All the pupils are internes; it is strongly held that re-education progresses much more

favorably if men are internes than if they live in their own homes. Their active hospital treatment is finished before their admission.

Certificates of competence are given to all those who graduate from the school; none receive certificates who do not deserve them. A fundamental principle of the school is to teach disabled men only trades which they are capable of performing efficiently. Those who are incapable of becoming self-supporting are dismissed; it is maintained that the right place for them is not a school for professional re-education but a special, appropriate institution.

4. Écoles de Rééducation Professionnelle des Invalides de la Guerre, École Joffre, 41, Rue Rachais; École Tourvielle, 25, Chemin de Tourvielle, Lyon (Rhône).

These schools were established by a movement commencing in November, 1914. They have, therefore, been in operation longer than any other similar institution in France. They have been most useful. At present there are about 250 men, all told, in the two schools, and there is a long waiting list of about 800 who desire admission. The school at rue Rachais is in the town and teaches, especially, accounting and toy-making. The school at Tourvielle is in the country and gives instruction, more especially, in manual occupations.

It is insisted that no pupil shall leave the school without having a good primary education; since a man without education can rarely become a successful employer and it is hoped many disabled men will become the heads of small businesses. Every effort is made to give men an occupation in which they can earn a living in competition with those who are sound.

The documentation of the school is not so complete as is that of the school at Bordeaux. Here, much more is left to the judgment of the instruction; they are personally responsible for making certain that the men are suitable for the occupations in which they receive instruction. The instruction is thorough and it is anticipated that, according to the occupation taught, pupils will spend from a year to, often, two years in the school.

The cost of maintaining the schools is high; it amounts to about 5.50 francs per day per pupil. One reason for this is that each individual, who is not yet in receipt of his pension, receives one franc daily from the institution; in addition the men are paid according to the value of their work.

These schools are administered by a Committee under the Presidency of the Mayor of Lyons, to whose initiative their establishment is due. They are maintained by funds obtained from private subscription, or from the town of Lyons, and by the usual subsidy from the State, paid through the War Department.

M. Basèque, the Director of the school at Lyons (Appendix A-2) was the Director of the school established for a similar purpose by Belgium, at Charleroi.

5. École de Rééducation Professionnelle des Blessés et Mutilés de la Guerre, Saint-Étienne (Loire).

The school was established in July, 1915. At present it has 115 inmates. It is supported, primarily, by the City. All those admitted to it have completed their functional re-education and have received artificial appliances. In addition to the usual crippled men, this institution cares for a few blind who come from this neighborhood. The school is obviously one intended to meet local needs (Appendix G-55).

6. Grand Palais, Champs-Élysées, Paris.

At present, the Grand Palais contains about 1,500 beds for patients undergoing more or less active treatment, and accommodation for about 2,000 convalescents. It possesses a very complete installation for all sorts of treatment useful in functional re-education. All of those living in the Grand Palais, as well as many out-patients, who require such treatment, receive it there. The department of physio-therapeutics, by a system of cards (Appendix F-18), keeps a careful control of the treatment and progress of patients receiving functional re-education.

7. Hôpital Militaire de la Maison-Blanche, Gouvernement Militaire de Paris, Neuilly-sur-Marne (Seine-et-Oise).

Before the war, the building housing this hospital was an asylum for female lunatics. It is

beautifully situated in the country and can accommodate about 1,500 patients. It was formerly used as a depot to which cases who had suffered amputation were sent. At present, while most of its inmates are of this class, it has a few patients with nervous affections.

It has already handled about 3,000 patients and at present supplies about eighty persons weekly with artificial limbs. The operative treatment and functional re-education of patients are supposed to have been completed before they are sent to this hospital.

Until recently no attempt was made here at professional re-education. At present, a little basket and toy-making is done, and there is a workshop in which wood-working—and the manufacture of artificial limbs—is carried on. Frame buildings are, however, being constructed, and it will not be long before functional re-education, on Professor Amar's system (Appendix A-17), and professional re-education are being thoroughly carried out, simultaneously with the supplying of artificial appliances.

8. Hospice National des Quinze-Vingts, 28, Rue de Charenton, Paris.

This institution was established by Louis IX for the poor blind of Paris. It is unique in that it provides accommodation both for blind persons and for their families. It is a headquarters for the consideration of all problems connected with the blind in France. Theoretically, all soldiers disabled by eye trouble should pass through the hospital forming part of this institution. Although blinded soldiers are treated at the 'Quinze-Vingts', practically nothing is done for their re-education there; that is carried on at an Annex of the institution called 'La Maison de Convalescence', 99 bis, Rue de Reuilly, Paris. This Annex is maintained and directed by a powerful society: 'Les Amis des Soldats Aveugles' (See above).

9. L'Institut Militaire Belge de Rééducation Professionnelle, Port Villez, Vernon (Eure).

This institution is established in a delightful situation. It has been organized with great forethought and attention to detail, and it has been administered with the greatest energy. As a

result, it is a most admirable and successful institution.

It is not, however, strictly speaking, a center of professional re-education, for wounded men. From the beginning, it has had, and still has, 500 engineers working in it. At present it is caring for 709 wounded. The institution, not only teaches occupations but produces much in its workshops for the Belgian Army.

A great part of the success of the institution is due to the fact that its inmates are unable to return to their homes in invaded Belgium, and to the fact that they receive only forty-three centimes a day, plus twenty-five centimes, or so, an hour for their work. Because they cannot return to their homes, men are willing to remain at such wages and the institution, by producing cheaply and by selling at good prices to its own Government, is almost able to maintain itself.

Forty-two different trades are taught at the school. Two of its principles are to secure a good primary education to each of its inmates and, by teaching them good trades for which they have an aptitude, to secure them positions in which they will be able to earn good livings although handicapped by infirmity. For the most part, the occupations taught here are manual; occupations requiring a higher education are taught at another Belgian school established at Mortain.

10. Institut National Professionnel des Invalides de la Guerre, 14, Rue du Val de l'Osne, Saint-Maurice (Seine).

This establishment is under the direction of M. le Dr. Bourrillon. It is housed in the 'Asile National Vacassy'. It can accommodate about 200 inmates; in Dr. Bourrillon's opinion a school for the re-education of disabled soldiers should not be larger. The running cost of the institution is about 5.75 francs per day per inmate. The occupations taught are shoe-making, tin-smithing, automobile construction, tailoring, harness-making, architectural design, simple accounting, typewriting and primary education. Attached to the institute is a plant for the manufacture of artificial limbs.

This institution was opened on the 1st of May, 1915. It is unique among the centers of

re-education in being directly and wholly in charge of the Government. Attached to this report (Appendix F-9) is a prospectus of the school which is distributed among those to whom it may be useful; combined with it is a form of application for admission to the institution; also attached to the Report is a set of post-cards illustrating men at work here (Appendix F-34). A cinematographic film of the work carried on there has been produced by Pathé Frères; it has been ordered for the use of the D. M. S., Canadian Contingents.

Dr. Bourrillon has embodied his opinions concerning the re-education of disabled men in a publication (Appendix G-5).

11. Institution Nationale des Sourds-Muets, 254, Rue Saint-Jacques, Paris.

This institution has been in its present position for 110 years. It exists for the training of the deaf and dumb, especially children, and its work is described fully in publications accompanying this report (Appendix G-24-G-30). It seems to be a most admirably organized and conducted institution. It has room for thirty deafened soldiers.

12. Musée Galliera, 10, Rue Pierre Charron, Paris.

An exhibition of works produced by disabled soldiers was held at this Museum. The Directors of the Museum recognize the great desirability of teaching disabled men occupations which have a permanent value, not likely to disappear with the waning of the present intense sympathy for disabled men.

13. Office National des Mutilés et Réformés de la Guerre, 97, Quai d'Orsay, Paris.

This office was established by the Ministers of Labor, of War, and of the Interior at the commencement of March, 1916. It is directed by a Commission presided over by a representative of the Minister of Labor; its membership comprises two delegates from each of the Ministers concerned. The object of the office is to secure coordination in the activities of the Ministries in all matters connected with the return to civilian life of soldiers and sailors. The constitution, composition, and functions of the office form the

subject of a bill introduced by the Government on April 14, 1916 (Appendix G-54, see also Appendix F-29). (Appendix G-69-70.) It sends out circulars, etc. (Appendix G-71), in connection with its work.

The first annual report of the *Office National des Mutilés et Réformés de la Guerre* (Appendix G-69a) contains a short and complete résumé of the various means adopted by the French Government in providing for its disabled soldiers and sailors. It also contains references to the laws by which various benefits are secured to disabled discharged men. It describes in some detail the organization of the *Office National*; it describes, also, the aims of the body, but it does not appear from the report that it has been possible to completely realize those aims by securing proper coordination among the various bodies executing the function in connection with the return of men to civilian life. From the report it seems that the *Office National* is only able to suggest and recommend in many instances where power to order might have been successful in producing prompter results.

The report gives the history of the establishment of the *Office National*. The *Office National* at present consists of (1) a committee of administration, which is responsible for general questions and especially with the coordinating of the various services occupied with matters connected with disabled and discharged men; (2) a commission of re-education, which advises in technical matters connected with re-education; (3) a council of 'perfection men'; it is especially concerned with watching the interests of discharged and disabled men.

The *Office National* has much to do with the departmental committees on disabled and discharged men which have been created in each of the French provinces; these committees are charged with the execution, in their district, of all matters connected with the care of discharged and disabled men. It is a duty of the *Office National* to determine the principles upon which these committees work.

The *Office National* keeps a register of all discharged men in order that employment may be found for them; it also keeps a register of all employment open to discharged men.

The commission of re-education has advised concerning the manner in which moneys appropriated for the assistance of re-education should be distributed. It is of the opinion that the number of men taking re-education is much smaller than it should be and that means should be taken to insure among disabled men greater appreciation and acceptance of the opportunities offered them.

The *Office National* secures coordination between the Central Occupation Bureau and the departmental committees.

Permanent assistance and guidance is secured for the disabled man by the *Office Central*. It is intended that this office shall watch always over the interests of disabled men.

The three bodies composing the *Office National* have studied many questions affecting disabled men from a general point of view. Among other conclusions to which they have come is that properly chosen and trained visitors should go to the hospitals in order to discuss their future with disabled men and to guide and assist them in the choice of a future occupation. They have also come to the conclusion that it will be necessary to establish workshops for disabled men who will be entirely unable, from the nature of their disability, to secure employment in general commerce.

The first annual report mentions the small number of those who are actually receiving professional re-education and insisting upon the importance of making the advantages of re-education known to disabled men and suggests that competent and well-trained visitors should be sent to the hospitals in order that they may persuade disabled men, at an early stage of their convalescence, of the importance of re-education and in order that they may give advice to disabled men in the choice of a future profession.

14. Office National de Placement des Mutilés et Réformés de la Guerre, 96, Quai d'Orsay, Paris.

This office was established in February, 1916, by the Ministers of War, of the Interior, and of Labor. Its objects are to assist discharged soldiers and sailors to obtain employment and to furnish a means of coordinating the activities

of the various ministries concerned in securing the proper return of soldiers and sailors to civil life.

As at first organized (Appendix F-25), it was intended that branches of this office should be established in each of the French military regions. At present, it is the intention that this office, shall be concerned only with the employment of disabled soldiers and sailors in Paris, and, perhaps, with the placing of disabled men in Government positions. Outside of Paris, existing or proposed Labor Exchanges, under the Minister of Labor, will find employment for disabled men in precisely the same way as they do for those who are sound. Good points in the organization of this office are its documentation (Appendix F-25), and the fact that a Medical Officer is attached to it to provide a constant control over the fitness of the men for the positions for which they offer themselves.

15. La Commission d'Orthopédie de France, Laboratoire du Professeur Amar, Conservatoire des Arts et Métiers, 292, Rue Saint-Martin, Paris.

This Commission has been entrusted with the duty of establishing the designs and specifications of artificial appliances provided by the State for disabled soldiers and sailors.

It consists of M. Jules Amar (Appendix E-1, A-17), President; General Sieur, Vice-President (War Department); Colonel Bouras (Prof. Amar's associate); Colonel Rieffel (Saint-Maurice, Appendix A-10); Capitain Legendre (Maison-Blanche, Appendix A-7); Colonel Pouy (Ministère de la Guerre) (Appendix E-23); Capitaine Plisson (Appendix E-22) (Ministère de la Guerre); M. Griess (Engineer); and Lieutenant Seron.

A meeting of the commission was attended; the care with which every point was discussed was striking.

Plans and specifications of the artificial arms (Appendix F-38) adopted by the commission are attached to this report; copies of the descriptions of other prosthetic appliances, when they have been adopted, will be sent to the D. M. S., Canadian Contingents.

16. Service Cinématographique de l'Armée (Ministère de la Guerre), 3, Rue François 1^{er}, Paris.

This Department was established comparatively recently. It already possesses many films of great value, among them are two illustrating the work done at the École Joffre (Appendix A-4), and another illustrating 'La Maison de Convalescence', of 'Les Amis des Soldats Aveugles' (Appendix A-1). The two films taken at the École Joffre are good. That illustrating 'La Maison de Convalescence' is of little value.

Attached is a list of the films possessed by this Department which are now ready for exhibition. The film illustrating nervous conditions (No. 11) is exceptionally good and should be of great value, both for convincing suitable cases that their affections are curable and for instructional purposes. Also attached is a list of the English titles supplied to Pathé Frères for the English copy of the film, illustrating the École Joffre, ordered from them.

All the films produced by this Department are sold in commerce at a uniform price of eighty centimes per meter. All are of standard size and have the universal perforation. War Office films put on the market by commercial houses have been edited and reduced in length; those supplied by the Department are unaltered originals.

There here follows a list of the medical films produced up to April 15, 1916, by the cinematographic service of the French War Office:

1. AN OPERATION AT THE GRAND PALAIS. (Extraction of a piece of shell from the heart wall by Dr. Laurent). Length, 135 meters.
2. HOW THE WOUNDED ARE CARED FOR. (The Department of physiotherapeutics at the Military Hospital established in the École des Arts et Métiers, Paris.) Length, 270 meters.
3. THE ÉCOLE JOFFRE AT LYONS. (Re-education of men disabled in the War.) Length, 430 meters.
4. CARREL'S METHOD APPLIED AT L'HÔPITAL DU ROND ROYAL, COMPIÈGNE. Length, 86 meters.
5. WITH THE SIXTH ARMY: THE UNDER-SECRETARY OF STATE VISITS THE AMBULANCES.
6. WITH THE SIXTH ARMY: THE MEDICAL SERVICE.

7. A SCHOOL OF RE-EDUCATION FOR BLINDED SOLDIERS, AT REUILLY. [Not good. J. L. T.] Length, 153 meters.
8. PROSTHESIS OF THE JAW AND FACE IN THE SERVICE OF DR. PONT AT LYONS. Length, 152 meters.
9. DIFFERENT FORMS OF LIMPING. Length, 380 meters.
10. THE SANITARY UNITS OF THE THIRTY-SIXTH CORPS. TENTH ARMY.
11. A FEW FUNCTIONAL TROUBLES IN MEN SUFFERING FROM SHOCKS. (Commotionnés.) [Excellent. J. L. T.] Length, 270 meters.
12. AN AMERICAN HOSPITAL TRAIN IS OFFERED TO FRANCE.

The descriptive matter and legends of the film illustrating the École Joffre are in translation as follows:

This is one of the schools established by the French for the benefit of their wounded and disabled soldiers. All those who have been disabled so that they are no longer able to follow their former occupations, go to one of these schools; they remain there at the expense of the Government until they have learned a new trade and have become, in spite of their disability, once more capable of earning a good living.

1. M. Herriot, Mayor of Lyons and a Senator of France, who founded this school.
2. This group of disabled soldiers are taking a commercial course which will enable them to earn good salaries as clerks.
3. With a little practice it is easy for a man who has lost his right hand to learn to write with his left.
4. A wounded man who has lost one hand and all the fingers of the other, except the thumb and the little finger, learns to write perfectly.
5. The same man became a good typewriter. With practice, a one-handed man can typewrite almost as quickly as a man who has two hands.
6. Two disabled men who earned a dollar a day before the war have now positions as clerks at salaries of \$65 a month.
7. On fine days, the shoemakers and tailors do their work out of doors.
8. The shoemakers.
9. The tailors.
10. The bookbinders.
11. There is nothing in bookbinding that these men cannot do well.
12. Disabled men make excellent telegraphic operators. They learn very quickly.

13. The best pupil in the class of wireless telegraphy is a farmer who left school when he was twelve years old.
14. The Director of the School, and disabled men who are learning market-gardening.
15. Toy-makers. Before the war, France yearly imported several million dollars worth of toys; most of them were made in Germany. After the war, France means to keep her money at home and make the toys herself.
16. Good money can be made at toy-making and novelty-making. These occupations give great opportunity to those who have good taste and imagination.
17. These men were disabled in fighting against Germany; when the war is over they will go on fighting the German toy trade.
18. One-handed men use machine saws.
19. A one-handed man at a lathe.
20. Moulding toys.
21. Painting.
22. Making Christmas candy boxes and cardboard novelties for the confectioners.
23. Some original toys made by these wounded men.
24. All the men at Joffre school have learned trades different to those which they followed before the war. You have seen that they have learned them well.
15. Artificial arm with working claw. (Amar.)
16. Artificial arm, usual type, in carpenter shop. (Amar.)
17. An artificial arm, usual type, at the forge. (Amar.)
18. Artificial arm (Amar's claw), using a saw.
19. Artificial arm (Amar's claw), using a plane.
20. Artificial arm (Amar's claw), using a rasp.
21. Artificial arm (Amar's claw), using a file.
22. Artificial arm (Amar's claw), at a lathe.
23. Artificial arm (Amar's claw), with a broom.
24. Artificial arms in a marble factory. (Amar.)
25. Instrumentation for recording effort of filing. (Amar.)
26. Record made in analyzing effort of filing. (Amar.)
27. Instrumentation for observing quantitative and qualitative changes in respiration and fatigue during filing. (Amar.)
28. Instrumentation for observing quantitative and qualitative changes in respiration and fatigue during filing. (Amar.)
29. Apparatus for measuring and sampling air respired. (Amar.)
30. Bicycle, used for functional re-education. (Amar.)
31. Bicycle, used for passive functional re-education of arm stump. (Amar.)
32. Bicycle, used for active functional re-education of arm stump. (Amar.)
33. Bicycle, used for recording fatigue, combined with observation of respiratory changes. (Amar.)
34. Cardiograph. (Amar.)
35. Functional re-education by the plane, note the metronome. (Amar.)
36. Teaching the left hand to do that which the right did, planing. (Amar.)
37. Platform for studying distribution of forces in walking. (Amar.)
38. Mercury bulb for functional re-education of hand. (Amar.)
39. Cheirograph, functional re-education of hand or of isolated digits. (Amar.)
40. The hammer, teaching a left hand to do the work of the right. (Amar.)
41. Splint, keeping wrist in extension permits digital flexors to function.
42. Splint, keeping wrist in extension permits digital flexors to function.
43. Work-shop for disabled soldiers maintained by Guild of Jewelers.
44. Jewelry made at the School for Vocational Re-education of disabled men maintained by the Guild of Jewelers.
45. Apparatus for studying and detecting thermotactile sensibility.

The legends of the film illustrating the physiotherapeutic work are as follows:

1. Drawing illustrating articulated hand. (Amar.)
2. Method of fitting and control of articulated hand. (Amar.)
3. Method of fitting and control of articulated hand. (Shows dual control.) (Amar.)
4. Violin played with articulated hand. (Coat off.) (Amar.)
5. Violin played with articulated hand. (Coat on.) (Amar.)
6. Articulated hand, in machine shop. (Amar.)
7. Articulated hand, in butcher shop. (Amar.)
8. Articulated hand, at typewriter. (Amar.)
9. Articulated hand, writing. (Amar.)
10. Articulated hand, riding. (Amar.)
11. Articulated hands (both arms lost). (Articulated hands are especially useful in such cases.) (Amar.)
12. Articulated hands (both arms lost). (Articulated hands are especially useful in such cases.) (Amar.)
13. Group of three men fitted with articulated hands. (Amar.)
14. Diagram illustrating artificial arm usually supplied. (Amar.)

17. Laboratoire de Prothèse, Service de Santé, Ministère de la Guerre, Laboratoire de M. le Professeur Amar, Conservatoire des Arts et Métiers, 292, Rue Saint-Martin, Paris.

The laboratory for prosthesis attached, under the Minister of War, to the French Army Medical Service is, in reality, the laboratory of Professor Amar (Appendix E-1); Professor Amar is also the President of the 'Commission d'Orthopédie de France' (Appendix A-15).

For the past fifteen years Professor Amar has been interested in human mechanics (Appendix G-56). Before the war broke out he had already a wide knowledge of the nature of the effort required by various occupations and a considerable experience, both in the provision of suitable artificial appliances to disabled men, and in re-education and in readapting disabled men for renewed employment.

Schools employing his methods have already been established for the functional and professional re-education of men disabled in the war: in Italy at Naples, Rome, and Milan; in France at Bordeaux (Appendix A-3), and at Vernon (Appendix A-9). It seems probable that all centers of re-education established in France will be greatly influenced by his teaching.

Professor Amar attaches the greatest importance to the maintenance of a high morale among disabled men, to commencing their re-education and their treatment as early as is possible, and to the choice of an occupation suitable for each man. He is of the opinion that re-education should be under the entire control of the State and that it should be compulsory for all disabled men who would benefit by it.

The first steps in the system of functional and professional re-education codified (Appendix G-1, G-2) by Professor Amar is the scientific examination of the individual concerned and the recording on a special form of the results of that examination (Appendix F-15). Accompanying the form is a series of graphic and written records of the results of the examinations made by Professor Amar's special instruments and methods.

The next step is the prescription of appropriate exercises with one or more of his machines; at intervals, records are taken of the work done.

In this way, a graphic record of the progress, both of the part educated and of general resistance to fatigue is obtained. The various instruments devised by Professor Amar are described, together with the manner of their employment, in his publications (Appendix G-1, G-2).

In using such apparatus as his cycle and cheirograph, it is of the greatest importance that efforts should be timed by a metronome in order to insure rhythmical movements and mental concentration.

The cycle is the machine most often used; it is employed in the re-education of arms and legs, for estimating the 'personal equation' and for recording resistance to fatigue. It consists of an ordinary bicycle firmly fixed to a base; on the rear wheel an accurately adjustable brake is attached. A crank, conveniently placed, is connected by a chain and sprocket with the rear wheel so that it can be turned by hand. The crank handle may be removed and a 'gutter' substituted for it. When it is required to re-educate the stump of an amputated arm, the patient sits beside the machine so that the axis of his shoulder joint coincides with the axis about which the gutter revolves, and movements against the resistance of the machine are made backwards and forwards by the patient. The inertia of the machine, which requires an additional effort at the end of each excursion to check its momentum, is considered to be an advantage.

The file and the plane are used in the re-education of upper extremities. The plane is especially useful in educating a left hand to take the place of a right hand which has been lost. The file is especially useful in detecting malingerers; it is impossible for a malingerer, voluntarily, to regularly reproduce a simulated defect during the five minutes for which a recorded test lasts. The bulb and cheirograph are used for the re-education of the hand and forearm; both have their uses. The cheirograph permits the isolation and re-education of single muscles or of groups of muscles.

Before full usefulness can be obtained from an artificial limb, the sensibilities—tactile, muscular, etc.—must be educated. As soon as a stump has become thoroughly accustomed to its arti-

ferential appliance, the Weir Mitchell phenomenon ~~disappears~~. Professor Amar has devised instruments and a process of instruction for the education of the stump.

Apart from the original nature of the machines which he employs, the peculiar advantage of Professor Amar's system is that it furnishes incontrovertible records of the extent of a disability at the commencement of re-education, of the progress of the re-education and of the benefit received from it. It is true that the records may vary from day to day according to the individual's condition; but, in practice, errors from such causes are guarded against. One is careful to make records under normal conditions; and when so taken they are of real value.

Illustrations of Professor Amar's instruments and of their employment accompanied the report made to the Director of Medical Services, Canadian Contingents, by Lieutenant-Colonel Arthur Mignault on *The system of the re-education of the wounded of the war, as it is actually practised in France*.

Professor Amar's instruments are manufactured by the Tainturier firm. The cost of all the instruments, complete, is about one thousand dollars.

The opinion at the schools of Bordeaux and Vernon (Appendix A-3, A-9) the two centers of re-education in France where Professor Amar's system is installed, was that it is a well-conceived plan. Some of his instruments, especially the cycle, were constantly used there. It was felt that some of his other instruments, e.g., the hammer and the apparatus for the analysis of gases, had only limited uses. It was also felt, while a record should be taken at the commencement and end of the re-education of every individual, that it was only in exceptional cases that advantage could be obtained by constantly

taking and preserving records of the patient's work and progress.¹⁷

APPENDIX B

List of Institutions at which the Professional Re-education of Men Disabled in the War is Carried on under the Direction of the Government.

This list is a translation of one issued by the Minister of the Interior towards the end of February, 1916; because additional accommodation will have been required, other schools have doubtless been established since then. The list gives, in tabulated form, the name of the school, the number of places offered by it to disabled men, the body upon which the school is immediately dependent and the nature of the occupations in which instruction is given.

All of the commercial and technical schools are attached to the Department of Commerce; the schools of agriculture are attached to the Department of Agriculture. Noteworthy is the manner in which the schools tend to give special attention to instruction in the main industries of the districts in which they are situated (See Oyonnax, No. 62, and Saint-Étienne, No. 23; Appendix F-IIa).

This list contains the names of seventy-two institutions providing places for 3,755 men; it is to be noted that the duration of the instruction provided varies from two or three months to one or two years, according to the nature of the occupation taught. The occupations most sought and most often taught are shoemaking, accounting, and tailoring. It has been suggested that excellent school teachers might be found among disabled men.

¹⁷ Somewhat similar instruments are used in a similar manner at the Grand Palais (Appendix A-6, G-65).

LIST OF CENTERS OF PROFESSIONAL RE-EDUCATION

<i>Name of School</i>	<i>Number of Places</i>	<i>Directed By</i>	<i>Instruction Given In</i>
1. Institut National de Saint-Maurice (Seine)	300	French Government	Shoemaking, rural mechanics, industrial design, tailoring, harnessmaking, joinery, surveying, elementary education, accounting, typewriting, tinsmithing, use of machine tools, etc.
2. Annex to No. 1 for lodging those undergoing apprenticeship; rue Rondelet, Paris	100	French Government	
3. Œuvre de la rue de Reuilly, for the blind; Annex of the Hospice National des Quinze-Vingts, Paris	200	French Government (and by the Society 'Les Amis des soldats aveugles')	Singing, music, brushmaking, coopering, bootmaking
4. Office departemental des Mutilés, rue et place du Puits de l'Ermite, Paris	200	Department	Shoemaking, tailoring, joinery, varnishing, accounting, stenography, English, general instruction, typefounding, lithography, typography, photography, machinists, bookbinding, industrial design moulders, surveying, factory-checking
5. École Pratique et Normale de Bordeaux	200	City	Joinery, cabinetmaking, woodturning and carving, coopering, wooden shoemaking, manufacture of orthopedic and prosthetic appliances, locksmithing, use of machine tools, coppersmithing, zincworking, basketmaking, bottle mouldering, brushmaking, bookbinding, ceramic arts, harnessmaking, ropemaking, shoemaking, tailoring, metal engraving, lithography, commercial instruction, shorthand, English, Spanish, gardening, cultivation of willows for basketmaking
6. Montpellier	200	Hospitals	Shoemaking, tailoring and joinery, cabinet-making, framing, varnishing, woodturning, industrial design, shorthand, typewriting, commercial instruction, general instruction
7. Bourges	200	Department	Shorthand, typewriting, accounting, chair-bottoming, basket-making, hairdressing, lace and architectural designing, tailoring, shoemaking, joinery, typography and lithography, wood-carving, electricians, spigotmaking
8. Toulouse	40	Department	Shoemaking, basketmaking, wooden shoemaking, accounting
9. Bayonne	200	City	General instruction, accounting, stenography, typewriting, wooden shoemaking, manufacture of chairs, brush-making, toymaking, manufacture of orthopedic appliances, joinery, shoemaking, tailoring, wood-carving, basket-making, photography

LIST OF CENTERS OF PROFESSIONAL RE-EDUCATION (*Continued*)

<i>Name of School</i>	<i>Number of Places</i>	<i>Directed By</i>	<i>Instruction Given In</i>
10. Pau	50	City	Brushmaking, sandalmaking, iron and woodworking, painting, printing, accounting, 'shoemaking, tailoring
11. Lyon	220	Mayor of City	Accounting, typing, shorthand, English and Russian, tailoring, shoemaking, joinery, bookbinding, cardboard-boxmaking, wooden shoemaking
12. Limoges	160	Chamber of Commerce	Shorthand, typewriting, accounting, shoemaking, tailoring, electricians, general instruction
13. Tours	100	'Société d'assistance aux convalescents militaires'	Harness-making, shoemaking, basketmaking, chairmaking, tailoring, accounting, shorthand, typewriting, woodturning, use of machine tools, design, commercial clerking
14. Pavillon-sous-Bois (Seine)	100	Department	Basketmaking
15. Duovres-la Delivrande (Calvados)	150	Department	Joinery, iron-working, basketmaking, chair-bottoming, chair-mending, shoemaking, harnessmaking, commercial instruction, carpetmaking, toymaking, designing, hairdressing, massage, cooking, photography, varnishing, brushmaking, cinematograph operating
16. Brest	180	City	Woodturning, joinery, coppersmithing, tinsmithing, fitting, tailoring, shoemaking, saddlemaking, harnessmaking, designing, stenography, typewriting, accounting, clockmaking
17. Lorient	50	City	General instruction, accounting, harnessmaking, granite-cutting, shoemaking, tailoring, bookbinding, cardboard-boxmaking, horticulture, clogmaking, sailmaking, carriage painting, cabinetmaking, wood-carving, clockmaking, jewelry
18. Nevers	100	Department	Accounting, shorthand, typewriting, joinery, cabinetmaking, wood-carving, chair-mending, gilding, upholstering, harnessmaking, shoemaking, tailoring, basketmaking, hairdressing, wooden-shoemaking, turnery, printing, typography, fitting
19. Antibes (Alpes-Maritimes)	25	'Femmes de France'	Shoemaking, tailoring, basketmaking, morocco leather-making, malting, typewriting, horticulture, forestry
20. Orléans	80	Local private initiative	Shoemaking, tailoring, brushmaking, soldering, bookbinding, harnessmaking, manufacture of orthopedic appliances, printing, dyeing, joinery, hairdressing, chairmaking, accounting, manufacture of dental apparatus, furrier
21. Oran. École Victor Vassal	150	'Femmes de France'	Joinery, saddlemaking, shoemaking, tailoring, bookbinding, accounting, manufacture of orthopedic appliances

LIST OF CENTERS OF PROFESSIONAL RE-EDUCATION (*Continued*)

<i>Name of School</i>	<i>Number of Places</i>	<i>Directed By</i>	<i>Instruction Given In</i>
22. Rouen	150	Chamber of Commerce	Shoemaking, tailoring, clockmaking, tinsmithing, basket-making, general instruction
23. Saint-Étienne	200	Department	Shoemaking, tailoring, clogmaking, joinery, clockmaking, basketmaking, brushmaking, chair-bottoming, horticulture, accounting, shorthand, typewriting, upholstering, decorating
24. Nimes	44	Local private initiative	Shoemaking, tailoring, joinery, accounting, shorthand, typewriting
25. Macon	-		Apprenticeships with the manufactures of the district
26. Le Mans		Chamber of Commerce	Apprenticeships
27. Annecy	50	City	Shoemaking, civil service, clerking
28. Saint-Claude (Jura)			Cutting of precious stones, pipemaking
29. Albi		Chamber of Commerce	Apprenticeships, primary instruction, typing, accounting
30. Auch	25	Department	Agriculturists
31. Nancy		Hospitals	In organization

AGRICULTURAL SCHOOLS¹⁸

<i>Name of School</i>	<i>Number of Places</i>	<i>Instruction Given In</i>
32. École Nationale d'Agriculture de Grignon	15	Shepherds, gardeners, agricultural machinists, farm-laborers, cowherds
33. École Nationale d'Horticulture de Versailles	20	Gardeners, basketmakers
34. École Nationale de laiterie de Poligny (Jura)	10	Cheesemakers, buttermakers, milkmen
35. École Professionnelle de laiterie de Sugères (Charente-Inférieure)	18	Buttermakers, milk-inspectors, accountants, cheesemakers
36. École Nationale de laiterie de Mamirolle (Doubs)	18	Buttermakers, milkmen, cheesemakers

¹⁸ The instruction at many of these schools is given in short courses lasting from for a few weeks to a few months.

AGRICULTURAL SCHOOLS (*Continued*)

<i>Name of School</i>	<i>Number of Places</i>	<i>Instruction Given In</i>
37. École Pratique d'Agriculture d'Ondes (Haute-Garonne)	8	Agricultural machinists, shepherds, cowherds, farm-laborers, gardeners, vine-growers, coopers
38. École Pratique d'Agriculture de la Reile (Gironde)	10	Cowherds, gardeners, vine-growers, coopers
39. École Pratique d'Agriculture de l'Oisellerie (Charente)	13	Shepherds, gardeners, cowherds, vine-growers, agricultural machinists
40. École Pratique d'Agriculture de la Brosse (Yonne)	12	Shepherds, gardeners, vine-growers, coopers, poultry-farming, agricultural machinists
41. École Pratique d'Agriculture de Fontaines (Saône-et-Loire)	12	Shepherds, gardeners, vine-growers, coopers, poultry-farming, agricultural machinists
42. École Pratique de Grand - Jouan (Loire-Inférieure)	8	Cowherds, farm-laborers, gardeners, basketmakers, agricultural machinists
43. École d'Agriculture d'Aurillac	18	Milkmen, gardeners, basketmakers, cheesemakers, buttermakers
44. Ferme École de Mont-luis	15	Milkmen, gardeners, basketmakers, cheesemakers, butter-makers
45. École Nationale de Rennes	12	Basketmaking, poultry-farming, beekeeping, cidermaking, forestry, agricultural machinists
46. École d'Agriculture de Châtillon - sur - Seine (Côte d'Or)	12	Shepherds, cowherds, farm-laborers
47. Ferme École de la Nourre (Gera)	10	Vine-growers, gardeners, coopers, farm-laborers, cowherds
48. École Pratique d'Agriculture de Genouillac	10	Cowherds, gardeners, vine-growers, coopers, farm-laborers
49. École Nationale d'Oisellerie de Fayl-Billot (Haute-Marne)	45	Basketmakers
50. Bergerie Nationale de Rambouillet	25	Shepherds

AGRICULTURAL SCHOOLS (*Continued*)

<i>Name of School</i>	<i>Number of Places</i>	<i>Instruction Given In</i>
51. Auch	}	Have established or will establish special schools for mutilated men
52. Bourges		
53. St.-Etienne (Sect. hort.)		
54. Lyon		
55. St.-Émilien		
56. Chateauroux		
57. Royat		

COMMERCIAL SCHOOLS

58. Clermont-Ferrand	90	Typewriting, shoemaking, tailoring, accounting, turnery, toymaking, mechanics
59. Thiers	30	Cutlery-making, mounting of clasp-knives, cutting of furnishings, polishing and making of handles
60. Fayl-Billot	10	Basketmaking
61. Elbeuf	20	Drapery, twisting, sampling, etc., factory and store-clerking
62. Oyonnax	50	Celluloid industry (the future workman should be willing to settle at Oyonnax, which is the only locality where this industry is carried on), engraving, cutting, grooving, punching, turning, etc. (which can be done at home), accounting
63. Cluses	70	National school of clock and watchmaking, finishing, assembling, etc., repairing, manufacture of automobile machines
64. Roanne	50	Cotton-weaving, hosiery, accounting, commercial clerking, etc.
65. Angers	30	Industrial design, tracing, school for foremen, surveying
66. Cluny	80	Industrial design, tracing, school for foremen, surveying
67. Marseille	100	Shoemaking, tailoring, accounting, clerking, stenography, typewriting, tracing, industrial design, wood and metal turning, joinery, mechanics, model making, electricity, jewelrymaking, tinsmithing, boilermaking, moulders, founding, coppersmithing
68. Le Havre	50	Harnessmaking, shoemaking, tailoring, metal and woodturning, reaming, counter-sinking, locksmithing, tinsmithing, industrial design, clerking
69. Cherbourg		In formation

APPENDIX C

Description and List of Bodies Visited which are Dependent upon Private Benevolence, but Exercise Functions Connected with the Return of Disabled Men to Civilian Life.

1. Association pour L'Assistance aux Mutilés Pauvres, 21, Rue François 1^{er}, Paris.

This association was established in 1868 for the purpose of supplying artificial limbs to poor people. Its direction is distinguished and competent. At first, it gave artificial limbs to soldiers. At present, its chief work is to advance supplies, to the value of not more than five hundred francs, to men who are returning to their homes, in order to enable them to acquire an outfit and commence work.

As a rule, those to whom advances are made are artisans; agriculturists are able to obtain credit from the 'Crédits Agricoles' by the influence of the 'Syndicats Agricoles' to which they belong. The loans are made upon their honor to men who can prove their need and their capacity for work; they are repayable in eighteen months; application for a loan is made personally or in writing.

The Society advertises its function (Appendix F-32) in the hospitals, and through nurses and others, does everything possible to make disabled men understand that they can still be self-supporting. Branches and correspondents of the society have been arranged for throughout France. Its funds are obtained from private benevolence. It has been recognized by the Government as being of public service, and it is doing useful work.

2. Association des Œuvres de la Croix-Verte, 6, Rue Schoelcher, Paris.

This society was founded in 1914. It has three sections; one meeting the wounded at the railroad stations, the second supplying them with clothing, and the third seeking to provide them with employment. It has, so far, placed about two hundred and ninety men. It has about twenty branches in the provinces. One of its principles is to return men, as far as possible, to their homes in the country. It depends upon subscriptions obtained from the public in vari-

ous ways for its maintenance; one source of income is the profit derived from the insistent sale in the streets of a periodical newspaper published by and for the benefit of the society.

Other societies raise funds in the same way. Samples of the periodical produced by the Croix-Verte (Appendix G-27) and of one other publication are appended to the report (Appendix F-26).

3. L'Atelier de Blessés, 21, Boulevard Beauséjour, Paris.

This Society was founded in October, 1915, under distinguished patronage; it is maintained through private subscriptions by a Committee of ladies. It established its first workshop in connection with a convalescent hospital established in the 'École Nationale des Arts et Métiers'. This workshop consists of a large room in the hospital. Light occupations of various sorts are carried on. Towels, bags, flares, and various objects requiring but little effort in their manufacture, are made for the army. The sewing-machines and other tools employed represent but a small outlay. It is intended to establish similar workshops in other hospitals at various places throughout France; one has already been established in the Grand Palais (Appendix A-6).

The idea underlying the establishment of such workshops is a good one; for they provide remunerative work in the hospitals for those who volunteer for it and are able to do it. Since they are under the control of the military authorities, they have a distinct value in the functional re-education of disabled men.

4. Les Blessés au Travail, 154, Avenue des Champs-Élysées, Paris.

This society was established in October, 1914, under distinguished patronage and direction. Its main object is to supply, free of cost, raw material for light occupations to soldiers while they are in hospital and to teach them how to use it. It also attempts to find employment for men; it maintains a small workshop and occasionally supplies artificial limbs. It has branches in at least twelve cities. It is maintained entirely by subscriptions.

In Paris about ninety-five women are actually engaged in teaching wounded soldiers. Practically, the only occupations taught are various forms of basket and toy-making. The objects made are the property of the soldier who may dispose of them as he will. If he wishes to sell them, the society buys them and markets them at a reasonable advance on their cost which does no more than pay the society's expenses.

The purpose with which the society has been founded is, by securing occupation to men in the hospitals, to preserve habits of work in them. It adheres closely to that ideal and intends to disappear when need for it ends.

5. La Chambre Syndicale de la Bijouterie Fantaisie, 25, Rue Chapon, Paris.

This trade society has opened a section for disabled soldiers in the school which it maintains for the training of apprentices. So far, forty men have passed through the school and have easily found good employment. After an apprenticeship of from six to eight months, men commence by earning at least five francs a day. The cost of their maintenance at the school is borne by their pension or by grants received from 'La Fédération d'Assistance aux Mutilés' (see below) or similar societies.

6. Fédération Nationale d'Assistance aux Mutilés, 63, Avenue des Champs-Élysées, Paris.

This society is an important one directed by well-known men. It was established as the result of appeals made through the *Écho de Paris* by Barrès, in February, 1916; it is said that about \$360,000 has been collected in this way. It has branches in twenty-four towns. The activities of the society are comprehensive. The problems surrounding the return of disabled men to civil life are well understood by its directors. The society advises men in the choice of a new profession. It provides facilities for their re-education in its own workshops and elsewhere. By gifts of money, it maintains men while they are being re-educated; it provides artificial appliances and assists men to find employment. It has already done much good work. It is supported by private subscriptions.

7. Œuvre des Amputés de Guerre, 67 bis, Rue Duplessis, Paris.

This society was founded in December, 1914. Its chief work has been to supply artificial limbs; about 350 have been distributed. It attempts to find situations for those who require them, and it assists men to return to their families. Its members visit the hospitals and assist wounded soldiers in whatever way they can. The society returns the bodies of men who have suffered amputation and who may die in military hospitals to their families. It depends for its funds upon private subscriptions. Although the names of one or two important persons appear upon its list of honorary officials, and although it possesses branches both in and outside of Paris, it is evidently an ephemeral and unimportant organization.

8. Institut National de Rééducation Professionnelle, Place des Peupliers, Paris.

This institution is housed in a building belonging to 'La Protection Mutuelle des Employés et Ouvriers des Chemins de Fer de France et des Colonies' and is supported by that society; it, the Union of the Railroad employees—'les Cheminots'—is a most powerful organization.

At present, the building is in due course of construction and will not be completed for some weeks. The institute is being established and organized under the close personal direction of Professor Amar (Appendix A-17). It is situated on a very desirable site, in a densely populated workmen's quarter. It is the intention that those attending the school should find their lodgings in the neighborhood. Those admitted to the school will have completed their hospital treatment and will require only functional and professional re-education. It is intended to give instruction in rough and fine machine work, industrial design, coppersmithing, tinsmithing, electrical engineering, repairing of motors, woodturning, woodcarving, joinery, shoemaking, manufacturing orthopedics, accounting, typewriting and the cutting of precious stones. The institution will be able to accommodate about 350 pupils.

8. DUBOIS, N., Directeur des Ateliers Départementaux pour les Ouvriers Mutilés, Estropiés ou Infirmes, 64, rue Arsène Chéreau, *Montreuil (Seine)*.
ATELIERS: 97, rue Campans; 13, rue Planchat, *Paris*.
9. FUSTER, Professeur au Collège de France, 4, rue Moulin-Bert, *Paris*.
10. GABELLE, Directeur du Conservatoire National des Arts et Métiers, 292, rue Saint-Martin, *Paris*.
11. GOURDON, Isaac, Médecin-Major, Directeur de l'École Pratique et Normale de Rééducation Professionnelle des Mutilés et Estropiés de la Guerre, 62, cours de l'Intendance, *Bordeaux (Gironde)*.
12. HELLBRON, Secrétaire les Blessés au Travail, 154, Avenue des Champs-Élysées, *Paris*.
13. HIRSCHFELD, Gustave, Directeur École Professionnelle des Blessés, École de Tourvielle, 25, chemin de Tourvielle près la place du Jour (in association with Madame Monod). *Lyon (Rhône)*.
14. LEJEUNE, Commandant, l'Institut Militaire Belge de Rééducation Professionnelle, *Port-Villez-les-Vernon (Eure)*.
15. LEROY LEWIS, Colonel H., Attaché Militaire, British Embassy, 39, rue du Faubourg Saint-Honoré, *Paris*.
16. MARCH, Président de la Commission d'Administration de l'Office National des Mutilés et Réformés de la Guerre, 97, quai d'Orsay, *Paris*.
17. MARCHOUX, Médecin-Chef de la Place de Paris, Hotel des Invalides, esplanade des Invalides, *Paris*.
18. MARSAUD, Directeur Général Honoraire au Ministère des Finances, en mission au Ministère de la Guerre, rue de Bellechasse, *Paris*.
19. MARSAUD, Capitaine, Cabinet du Ministre, Ministère de la Guerre, 14, rue Saint-Dominique, *Paris*.
20. MASSE, Pierre, Député, 27, avenue de l'Alma, *Paris*.
21. PIQUENARD, Chef de Cabinet du Ministre, Ministère du Travail, 1, rue de Grenelle, *Paris*.
22. PLISSON, Major de 2^e Classe, Sous-Secrétariat d'État du Service de Santé, Ministère de la Guerre, 231, boulevard Saint-Germain, *Paris*.
23. PUOY, Médecin-Principal, Service de Santé, Ministère de la Guerre, 231, boulevard Saint-Germain, *Paris*.
24. ROULET, Médecin-Major, Directeur de l'Hôpital Militaire de la Maison-Blanche, *Neuilly-sur-Marne*.
25. SIMONIN, Directeur des Services Techniques, Sous-Secrétariat de la Santé, Ministère de la Guerre, 231, boulevard Saint-Germain, *Paris*.
26. TENOT, H., Directeur de l'Enseignement Technique, Ministère du Commerce et de l'Industrie, 101, rue de Grenelle, *Paris*.
27. VALERY-RADOT, René, Président les Amis des Soldats Aveugles, 3, rue Saint-Dominique, *Paris*.
28. VAUGHAN, Ernest, Directeur des Quinze-Vingts, 28, rue de Charenton, *Paris*.
29. METIN, Albert, Ministre du Travail et de la Prévoyance Sociale, rue de Grenelle, *Paris*.
30. CROZE, J. L., Lieutenant, Chef du Service Cinématographique de l'Armée, 3, rue François 1^{er}, *Paris*.

APPENDIX F

List of Documents Attached to Report, which May Be Useful in Suggesting Measures for Canada

Publications Used in the Teaching of Accounting

1. Books and forms used in teaching accounting at the École Joffre (Appendix A-4).
2. Forms used in teaching accounting at Bordeaux (Appendix A-3).

Publications Dealing with the Organization and Operations of Certain Institutions, or Concerned with Professional Re-education.

3. Bordeaux school—card indices (Appendix A-3).
4. Bordeaux school—workshop notebook.
- 5 and 6. Bordeaux school—progress reports.
7. Bordeaux school—constitution and regulations.
8. Rules and regulations of public workshops (Appendix A-2).
9. Circular of the center of re-education at Saint-Maurice (Appendix A-10).
10. Regulations of Maison de Convalescence at Reuilly. (Appendix A-1).
11. Work cards distributed at the Maison de Convalescence (Appendix A-1).
- 11a. Description of the organization and work of the center of re-education at Saint-Étienne (Appendix B-24; Appendix A-5).

Forms Filled Up at the Entrance of Patients to Centers of Re-education

12. Card indices employed at Vernon (Appendix A-9).
13. Circular, combined with application for admission, issued by Saint-Maurice (Appendix A-10).
14. Forms filled upon admission to the École Joffre (Appendix A-4).
15. Statement of aptitudes originated by Professor Amar (Appendix E-1; A-17).

16. Documents established for all patients admitted to the Bordeaux school (Appendix A-3), together with the envelope in which patients' records are preserved.
17. Statement of aptitudes employed at Vernon (Appendix A-9).

Description and Cards Used for Recording Physiotherapeutical Treatment at Centers of Re-education

18. Cards used at Grand Palais (Appendix A-6).
19. Cards used at Vernon (Appendix A-9).

Forms Used in Providing Assistance or Employment for Ex-soldiers

20. Forms used by 'Les Blessés au Travail' in recommending a man for a situation (Appendix C-4; D, Introduction).
21. Forms used by the 'Secours National' for the clearing-house established by it for the private labor exchanges dealing with disabled soldiers in Paris (Appendix D, Introduction; D-27).
22. Questionnaire employed by the 'Assistance aux Mutilés' in gathering information concerning applicants for assistance (Appendix C-6).
23. Questionnaire used by the 'Assistance aux Mutilés Pauvres' in gathering information concerning applicants for assistance (Appendix C-1).
24. Questionnaire used by 'Les Œuvres de la Croix-Verte' (Appendix C-2).
25. Forms used by 'L'Office National de Placement des Mutilés et Réformés de la Guerre' in acquiring and recording information concerning applicants for employment; also a statement of its first plan of organization (Appendix A-14).
26. One of many publications sold on the streets for the benefit of various societies connected with works of private benevolence.

Documents Touching Certain Official Activities in Matters Connected with the Establishment of Ex-soldiers in Civilian Life

27. The organization of an exhibition of work done by wounded soldiers.
28. Notice of the establishment of 'L'Office National des Réformés et Mutilés de la Guerre'. (Journal Officiel, March 3, 1916.)
29. Program of matters to be studied drawn up at one of the first meetings of 'L'Office National des Réformés et Mutilés de la Guerre': it is the function of this body to secure properly coordinated, administrative control of all questions concerning the return of ex-soldiers and ex-sailors to civilian life (Appendix A-13).

30. The Minister of Labor gives the Prefects instructions concerning Labor Bureaus.

Posters and Postcards Used in Obtaining Publicity

31. By 'Les Blessés au Travail' (Appendix C-4).
32. By 'L'Assistance aux Mutilés Pauvres' (Appendix C-1).
33. By the 'City of Paris' (Appendix B-4).
34. By the centers of re-education at Saint-Maurice (Appendix A-10).
35. By the Belgian institution at Vernon (Appendix A-9).

Suggestions Already Made Concerning Measures to Be Adopted by Canada

36. Report of the Pensions and Claims Board.
37. Disability table. (This table is based upon the *Guide-Barème des Invalidités* of the French Government [Appendix C-31] and upon the experience of France, Germany, Austria, Italy, and the United States, among other countries, in the estimation of the extent of incapacities resulting from injuries.)

Prosthetic Appliances

38. Commission d'Orthopédie de France (Appendix A-15). (Plans and Specifications of artificial arms supplied by the French Government. Descriptions of the artificial legs and of other prosthetic appliances adopted by the Commission will be supplied to the Director of Medical Service, Canadian Contingents.)
39. Form (Army Form B-179, Canada) used by medical boards of the Canadian Expeditionary Force in recording their proceedings.
40. Cards used by 'L'Office National des Mutilés et Réformés de la Guerre' in recording particulars concerning discharged soldiers.

APPENDIX G

List of Publications Consulted

1. AMAR, Jules, *La Prothèse et le Travail des Mutilés*. H. Dunod & E. Pinat, 47/49, quai des Grands-Augustins, Paris. 1916.
- 1a. AMAR, Jules, *Appareils de prothèse du membre supérieur*. Comptes-rendus, t. 162, p. 401, Séance du 13 Mars, 1916. L'Académie des Sciences. 55, Quai des Grands-Augustins, Paris.
2. AMAR, Jules, *La Rééducation professionnelle des Blessés et des Mutilés de la Guerre*. Journal de Physiologie et de Pathologie générale. Masson

- & Co., Éditeurs, Librairies de l'Académie de Médecine, 120 boulevard Saint-Germain, Paris. July, 1915.
3. *Le Placement public en Grande-Bretagne pendant la Guerre.* Circulaires du Secrétariat général, No. 25. Published by the Association Française pour la Lutte contre le Chomage, 1st June, 1915: 34, rue de Babylon, Paris.
 4. *Les Blessés au Travail, Œuvre pour les Soldats Convalescents ou Réformés.* Fondée en Octobre 1914. Rattachée au Ministère de la Guerre. 154, avenue des Champs-Élysées, Paris.
 5. BOURRILLON, Dr., *Professional re-education of those disabled by the War.* Extract from Revue Bleue, 11-18th December, 1915. Conference delivered by M. le Dr. Bourrillon before the Alliance d'Hygiène Sociale'.
 6. BOURRILLON, Dr., *La Rééducation professionnelle des Invalides de la Guerre.* Extract from La Revue Philanthropique, December, 1915, and January, 1916. Masson & Co., Éditeurs, 120, boulevard Saint-Germain, Paris.
 7. BORNE, M. le Dr., *La Rééducation et la Réadaptation au Travail des Blessés et des Mutilés de la Guerre.* Extract from Bulletin Société d'encouragement pour l'industrie nationale. Philippe Renouard; 19, rue des Saints-Pères, Paris, 1915.
 8. BOURLON, M. de Sarty, *Rapport sur les travaux et la situation de l'œuvre.* Association pour l'assistance aux Mutilés pauvres: fondée 1868. Imprimerie et librairie centrales des chemins de fer; 20, rue Bergère. 1916.
 - 8a. BOURLON, M. de Sarty, *Rapport sur les travaux et la situation de l'œuvre.* Association pour l'assistance aux Mutilés pauvres: fondée 1868. (La Chromographie française, 5, rue Lanblardie, 1917.)
 9. BRISAC, Jules, *La Guerre et l'Assistance au Blessés de la Tuberculose.* Revue Scientifique, 12-19 February, 1916, p. 100; 41 bis, rue de Château-dun, Paris.
 10. *Mesures d'hygiène à prescrire dans les régions qui ont été le théâtre des opérations de guerre.* Extract from the Revue d'hygiène et de police sanitaire, Tome XXXVII, No. 3, p. 227, March, 1915. Masson & Co., Éditeurs; 120, boulevard Saint-Germain, Paris.
 11. BRISAC, Jules, *Les Services d'assistance et les œuvres de guerre.* La Revue Philanthropique, p. 65, 15th February, 1916. Masson & Co., Éditeurs, 120, boulevard Saint-Germain, Paris.
 12. *Assistance aux militaires tuberculeux.* Sommaire, Commission permanente de préservation contre la tuberculose, 15th January, 1916: Ministère de l'Intérieur; République Française.
 13. *Stations sanitaires pour soldats tuberculeux.* Sommaire, Commission permanente de préservation contre la tuberculose; 6th November, 1915; Ministère de l'Intérieur; République Française.
 14. *Conditions d'admission dans les centres de rééducation professionnelle.* Circulaire No. 16, Direction de l'Assistance et de l'Hygiène Publiques; Paris, 16th February, 1916; Ministère de l'Intérieur; République Française.
 15. *Règles relatives aux centres de rééducation professionnelle.* Ministère de l'Intérieur; République Française.
 16. CARLE, M. Dr., *Les Écoles professionnelles des blessés.* Imprimerie A. Rey, 4, rue Gentil, Lyon. Preface by M. Ed. Herriot.
 - 16a. CARLE, M. Dr., *Les Écoles professionnelles des blessés.* Preface by M. Edouard Herriot. Imprimerie A. Rey, 4, rue Gentil, Lyon. 1915.
 17. *L'Ambulance.* Journal périodique; Organe officiel de la Croix-Verte; 8, rue de l'Agent-Bailly. Paris (IX); 10th February, 1916.
 18. DELTENRE, Dr. Armand, *L'Hôpital Anglo-Belge.* Institut de Physiothérapie et d'Orthopédie de l'Armée Belge; Rouen. Imp. de l'Institut Militaire Belge de Rééducation Professionnelle; Port-Villez, Vernon (Eure), 1916.
 - 18a. CONFÉRENCE INTERALLIÉE pour l'Étude de la Rééducation professionnelle et des questions qui intéressent les Invalides de la Guerre, 12 Mai 1917. Plan of the buildings at the Institut Militaire Belge des Mutilés, Invalides et Orphelins à Port Villez, par Vernon (Eure).
 19. DUBOIS, Notes and publications concerning *Les Ateliers Départementaux.* 64, rue Arsène-Chéreau, Montreuil sous-Bous (Seine).
 20. VITOUS, Dr. George, *L'Assistance aux Mutilés de la Guerre.* Le Petit Parisien; 19th January, 1915.
 21. EHRHARD, Auguste, *Les Œuvres de l'Hôtel de Ville pendant la Guerre.* A. Rey, Imprimeur-Éditeur; 4, rue Gentil, Lyon. 1916.
 22. FÉDÉRATION NATIONALE d'Assistance aux Mutilés. Siège Social; 63, avenue des Champs-Élysées, Paris. 1st of February, 1916. Imp. Maulds, Doumène & Co., 144, rue de Rivoli, Paris.
 23. *Rééducation professionnelle des Blessés, Mutilés et Estropiés de la Guerre* (Rapport a M. le Ministre du Commerce et de l'Industrie). Bulletin de

- l'Enseignement technique No. 12, p. 237, 31st December, 1915. Librairie Vuibert; 63, boulevard St. Germain, Paris.
24. *Étude de Traitement de Bégaiement par la Photographie.* Revue Générale de l'Enseignement des Sourds-Muets; April, 1914. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, rue Saint-Jacques, Paris.
- 25a. *Quelques Méthodes de Rééducation auditive.* Revue Générale de l'Enseignement des Sourds-Muets; July-September, 1915. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, rue Saint-Jacques, Paris.
- 25b. *Quelques Méthodes de Rééducation auditive.* Revue Générale de l'Enseignement des Sourds-Muets; October, 1915. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, rue Saint-Jacques, Paris.
- 25c. *Quelques Méthodes de Rééducation auditive.* Revue Générale de l'Enseignement des Sourds-Muets; December, 1915. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, rue Saint-Jacques, Paris.
26. PROGRAMME d'Enseignement Auriculaire. Institution Nationale des Sourds-Muets de Paris. Atelier Typographique de l'Institution Nationale; 254, rue Saint-Jacques, Paris.
27. *Pour les mutilés de l'ouïe.* L'Actualité Scientifique, p. 173, 15th October, 1915. Imprimerie H. Geoffroy, 49, rue Monsieur-Prince, Paris.
28. *Les Mouvements de la Parole.* L'Actualité Scientifique, p. 61, April, 1914. Imprimerie H. Geoffroy, 49, rue Monsieur-le-Prince, Paris.
29. *La Parole et les Sourds de Faible Intelligence.* Institution Nationale des Sourds-Muets de Paris. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, rue Saint-Jacques, Paris, 1911.
30. *Institution Nationale des Sourds-Muets: Année Scolaire 1914-1915.* Distribution des Prix. Ministère de l'Intérieur. République Française. 10th July, 1915. Atelier Typographique de l'Institution Nationale des Sourds-Muets; 254, Saint-Jacques, Paris.
31. *Guide Barème des Invalidités.* Ministère de la Guerre. République Française. Henri Charles Lavauzelle, Éditeur militaire: 124, boulevard Saint-Germain, Paris, 1915.
32. METIN, Albert, *Ministère du Travail et de la Prévoyance Sociale.* Circulaire 29th December, 1915. République Française. Direction du Travail; 80, rue de Varenne.
33. KRAUS, Dr., Memorandum of a Book. (Über das Berufsschicksal Unfallverletzter, 1915. Stuttgart-Berlin. Cotta 2d. p. 103.)
34. *Organisation de l'apprentissage des estropiés de la guerre.* Memorandum: République Française. Ministre du Commerce, de l'Industrie, des Postes et Télégraphes. Conservatoire National des Arts et Métiers. Laboratoire de Recherches sur le travail professionnelle. 292, rue Saint-Martin, Paris.
35. PÆUW, Leon de. *La Rééducation professionnelle des Grands-Blessés de Guerre et l'Institut Militaire Belge de Rééducation professionnelle de Port-Villez-les-Vernon.*
36. INSTRUMENTS et APPAREILS de Précision. E. Tainturier, Constructeur, 7, rue Blainville, Paris (V°). V. Le Fascicule Physiologie—Psychologie. August, 1909.
37. PRIX COURANT des INSTRUMENTS et APPAREILS de PRÉCISION pour la Physiologie et la Méthode graphique. Pirard & Cœurdevache, Succr. de E. Tainturier. 7, rue Blainville, Paris (V°). Extrait du catalogue général. Imp. P. Dubreuil, 18, rue Glauzel, Paris, 1905.
38. PROPOSITION de LOI relative à l'interdiction de la mise en gage des titres de pensions et aux avances sur pensions en cours de trimestre; (renvoyée à la Commission des Pensions Civiles et Militaires). Chambre des Députés. No. 1714, Session de 1916.
- 38a. RAPPORT fait au nom de la Commission des Pensions Civiles et Militaires chargée d'examiner la proposition de loi de M. Pierre Masse et plusieurs de ses collègues relative à l'interdiction de la mise en gage des titres de pensions et aux avances sur pensions en cours de trimestre. Chambre des Députés No. 2384, Session de 1916.
39. PROPOSITION DE LOI tendant à donner aux mutilés de la guerre les moyens d'acquérir une propriété rurale; (Renvoyée à la Commission d'assurance et de prévoyance sociales). Chambre des Députés; No. 1740; 3rd February, 1916. Martinet, Imp. de la Chambre des Députés, 7, rue Saint-Benoit, Paris.
40. RAPPORT by M. Emile AIMOND, Service général des pensions, secours, renseignements aux familles, de l'état civil et des successions militaires, etc. Sénat, No. 29; 3rd February, 1916. Imp. du Sénat, Palais du Luxembourg, Paris.
41. PROJET DE LOI. Service général des pensions, secours et renseignements aux familles des militaires. Chambre des Députés; No. 1457;

- 18th November, 1915. Martinet, Imp. de la Chambre des Députés, 7, rue Saint-Benoit, Paris.
42. RAPPORT by M. Raoul PERET, Service général des pensions, secours et renseignements aux familles des militaires, etc. Chambre des Députés, No. 1670; 13th January, 1916. Martinet, Imp. de la Chambre des Députés, 7, rue Saint-Benoit, Paris.
43. AVIS by M. Arthur GROUSSIER, Mutilés de la guerre victimes d'accidents du travail, etc. Chambre des Députés, No. 1882; 3d March, 1916.
- RAPPORT by M. L. Bonneval, Mutilés de la guerre victimes d'accidents du travail, etc. Chambre des Députés, No. 1717; 27th January, 1916.
- 43a. PROJET DE LOI, concernant les Mutilés de la guerre victimes d'accidents du Travail. Martinet, Imp. de la Chambre des Députés, 7, rue Saint-Benoit, Paris.
- 43b. LOI concernant les Mutilés de la Guerre victimes d'accidents du Travail. (L'Assureur Parisien, December 31, 1916.)
44. RAPPORT by M. Leon ACCAMBRAY, Le Projet de Loi tendant à réserver, dans les conditions spéciales, des emplois aux militaires et marins réformes, etc. Memorandum, Chambre des Députés, No. 1333; 7th October, 1915.
45. AVIS by M. A. LEBRUN, Le Projet de Loi tendant à réserver, dans les conditions spéciales, des emplois aux militaires et marins réformés, etc. Memorandum, Chambre des Députés, No. 1442; 12th November, 1915.
- 45a. PROJET DE LOI, adopté par la Chambre des Députés; adopté avec modifications par le Sénat.
46. PROPOSITION DE LOI tendant assurer l'emploi obligatoire des mutilés de guerre. No. 1337; 7th October, 1915. Chambre des Députés.
47. PROPOSITION DE LOI concernant les emplois à réserver aux soldats mutilés, ou à leurs familles. Chambre des Députés, No. 1436; 12 November, 1915. Martinet, printer to the Chamber of Deputies, 7, rue Saint-Benoit, Paris.
48. PROPOSITION DE LOI, tendant à établir la rééducation professionnelle des blessés et mutilés de la guerre appelés à bénéficier de la loi sur les pensions militaires. By M. Pierre Rameil. Chambre des Députés, No. 1474 (rectifié); 23 November, 1915. Martinet, 7, rue Saint-Benoit, Paris.
49. PROJET DE LOI, tendant à modifier la législation des pensions des armées de terre et de mer (Renvoyé à la Commission des Pensions Civiles et Militaires). Chambre des Députés, No. 1410; 4th November, 1915. Martinet, 7, rue Saint-Benoit, Paris.
50. LOI relative aux droits à pension des fonctionnaires civils de l'État qui accomplissent en temps de guerre au service militaire, et de leurs veuves ou orphelins, dans les cas de blessures ou de décès résultant de l'exécution de ce service. Loi du 14th March, 1915. Also Circular 18th August 1915, No. 4695.
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APPENDIX H

Military Hospitals and Convalescent Homes Commission, Ottawa, Canada.

An Order in Council, dated 8th of October, 1915, appointed the 'Military Hospitals and Convalescent Homes Commission', and vested it with powers of the greatest width and importance; this Commission thus assumed, among others, the activities which were to have constituted the duties of the 'Military Hospitals Commission', established in June, 1915, and now placed by the 'Military Hospitals and Convalescent Homes Commission'. On the 20th of October, 1915, a conference was held by the Commission with the Provincial governments.

Provincial members have been added to the personnel of the Commission from the beginning, representative of each Canadian province—and provincial branches of the Commission have been established in every province of the Dominion.

The 'Military Hospitals Commission', as it is usually called, has been most active, and has, both by the establishment of hospitals and convalescent homes, among other institutions, and by the provision of machinery for considering and caring for their needs, done much to insure the proper return of Canadian soldiers to civilian life. The Bulletin published by the Military Hospitals Commission publishes a current account of its activities.

On the 24th of June, 1916, Order-in-Council, P.C. 1469, approving the creation of the Military Hospitals Commission Command, was passed. This Command to form part of the Canadian Expeditionary Force for Home Service and to consist of men returned invalided from the Front and convalescent men from Overseas Battalions to be under the Military Hospitals Commission in all matters connected with Command, administration and discipline subject to the requirements of the military service.

The following are the Members of the Military Hospitals Commission (Military Hospitals and Convalescent Homes Commission):

President

The Honorable J. A. LOUGHEED, P.C., K.C.

Members

The Hon. THOMAS W. CROTHERS, P.C., K.C., Ottawa.
 ROBERTS GILL, Esq., Ottawa.
 W. M. DOBELL, Esq., Quebec.
 Hon. Colonel Sir RUDOLPH FORGET, M.P., Montreal.
 W. K. GEORGE, Esq., Toronto.
 LLOYD HARRIS, Esq., Brantford.
 J. H. S. MATSON, Esq., Victoria.
 D. LORNE GIBBON, Esq., Montreal.
 The Hon. JOHN S. McLENNAN, Sydney.
 Colonel Sir H. M. PELLAT, C. V. O., Toronto.
 Lieutenant-Colonel C. W. ROWLEY, Winnipeg.
 Lieutenant-Colonel CLARENCE F. SMITH, Montreal.
 Lieutenant-Colonel THOMAS WALKER, M.D., St. John.
 SMEATON WHITE, Esq., Montreal.
 The Director General of Medical Services, Ottawa.

Ex-Officio Members

(Appointed by arrangement with the Provincial Governments)

Ontario—W. D. McPHERSON, Esq., K.C., M.P.P., Toronto.

Quebec—The Hon. George A. Simard, M.L.C., Montreal.

Nova Scotia—The Hon. R. M. McGREGOR, New Glasgow.

New Brunswick—THOMAS H. BELL, Esq., St. John.

Manitoba—Sir DANIEL McMILLAN, K.C.M.G., Winnipeg.

British Columbia—The Hon. H. E. YOUNG, M.D., L.L.D., M.P.P., Victoria.

Prince Edward Island—Hon. J. A. MATHIESON, M.P.P., Charlottetown.

Saskatchewan—The Hon. Mr. JUSTICE ELWOOD, Regina.

Alberta—The Hon. C. W. FISHER, M.P.P., Edmonton.

A Parliamentary Committee, consisting of Messrs. Green, Hazen, Lemieux, MacDonald (Pictou), MacDonell (South Toronto), Oliver and Scott, was appointed on March 14, 1916 (see Hansard of same date), to consider the pensions question. It appears, from telegraphic reports in British papers, that this Committee has already, in part at least, made its report.²⁰

(This Committee had before it the Report of the Pensions and Claims Board, which forms part of this Report, as well as recommendations from the Office of the Director of Medical Services and from other sources.)

APPENDIX I

The Inter-Allied Conference

The Inter-Allied Conference for the study of professional re-education and other questions affecting soldiers and sailors disabled by the war took place in Paris from May 8 to May 12, 1917.

The Conference was divided into six sections. Opportunities were given for visiting hospitals and schools of re-education in Paris and the neighborhood. The sections were as follows:

1. Physical re-education or treatment.
2. Professional re-education or training.
3. The placing and employment of disabled men in civilian life.

²⁰ This Report was laid before the House on May 10, 1916. On its recommendations the Board of Pension Commissioners or Canada was established.

4. The economic and social interests of the disabled.
5. The blind.
6. Documentation and propaganda of methods relating to the disabled.

There were present at the Conference representatives from Great Britain, Canada, France, Belgium, Russia, Portugal, Italy, and Serbia. Great interest in the Conference was displayed by a large section of the French public.

The main conclusions arrived at by the Conference were as follows:

1. *Physical Re-education or Treatment.* The French *Service de Santé* has created a commission for the study of orthopedic questions, an organization to control the making and application of apparatus, and centers for orthopedic treatment and re-education. In France and Belgium no man is discharged from the Army until his cure is completed in so far as possible. Two important resolutions in respect to this subject were the outcome of the Conference, namely, that (1) a Board of Research and Study should be established in every one of the Allied countries, and (2) that an Inter-Allied Commission should be constituted to examine everything bearing upon the question of prosthesis.

2. *Training or Professional Re-education.* Training or workshops are attached to all the French hospitals, and large establishments are set up for re-education. In France, Belgium, and Italy training is compulsory and the doctor has the principal choice in deciding what trade the man is to follow. The general idea is that better results are obtained by allowing the training to be voluntary, but in France and Italy this training ceases as soon as a man is discharged from the army. In both these countries, as in Great Britain, difficulty is experienced in persuading men to undergo re-education. Unanimous approval was expressed in regard to Section 6 of the British Royal Warrant which provides for the payment of a man during the period that he is undergoing re-education or treatment.

3. *Employment.* As France is an agricultural country, the great question there is to get men back to the land, but in many ways the difficulties experienced in France are much the same as those in other countries. Her organization is not on such an excellent basis as that of England. In respect of insurance, a law has recently been passed by which the State pays the difference in the rate of insurance charged for a disabled man, and that for a normal one from a fund created by a special tax on all employers. In Italy workingmen's insurance companies are obliged to insure all disabled soldiers who have gone back to work of any kind.

4. *Government Action and Responsibility Generally.* The centralization of authority in England greatly appealed to the Allies. In France, in consequence of so many Departments having charge of the returned soldier there is much overlapping and the same is true of other countries with the exception of Belgium. As regards pensions, French legislation is still in a state of revision. One of the results of the discussion on pension was Resolution 24, promising special study of special cases in order that special circumstances might be taken into account in the awarding of pension.

5. *Future Inter-Allied Action.* Common action between the Allies was recommended for the future, and it was resolved that an Inter-Allied Bureau of Information on all questions relating to the treatment and training of disabled soldiers should be created, and that pending the formation of such a bureau, all such information should be forwarded to the French Statistical Office in Paris.

APPENDIX J

*Recommendations of the Pensions and Claims Board, C. E. F., as to Pensions and Other Matters Pertaining to the Return of Members of the Canadian Militia from Active Service to Civil Life.*²¹

The Pensions and Claims Board now sitting at Folkestone, England, has for the past five months, been engaged in investigating the cases of, and recommending pensions for, disabled Canadian soldiers, and their dependents. It has also been making a careful study of the subject of Pensions, both as a matter by itself, and in relation to the larger problem of the care of, and provision for, the Canadian soldier on his return to civil life. This study has involved exhaustive research work as to the pension laws and provisions of the principal European nations and of the United States of America.

From this study and from the knowledge gained by practical experience of work done under the Pension provision of the Canadian Militia Pay and Allowance Regulations, 1914, now in force, this Board has formed certain definite opinions which it now respectfully begs to submit for your consideration in the hope that they may be of some assistance to those in Canada who are engaged in the effort to solve

these difficult and all-important problems. Throughout this report, whenever it has appeared necessary to support a recommendation, a short explanatory note has been appended to the paragraph containing the recommendation.

On the matter of pensions proper, we beg to offer the following suggestions, which are intended to be applicable to all members of the Canadian Militia on Active Service, whether home or foreign, including Chaplains, members of the C. A. M. C., nursing sisters, and, speaking generally, all non-combatant as well as all combatant members.

1. All pensions or benefits awarded to members of the Canadian Militia disabled on Active Service, and to their dependents, should be paid from the public funds of the Dominion of Canada.

N. B. Since the disabilities were incurred in the service of the Canadian nation as a whole, the funds necessary for pensions and other benefits should be a charge upon the Federal Government and not upon Provincial or other Governments, or upon private benevolence.

2. The award of pensions should be under the exclusive jurisdiction of a Central Pensions Board, which, above everything, should be removed from all possibility of political influence. Its members should be appointed by the Governor-General-in-Council for life, and be removable only for cause.

N. B. The experience of other nations has proved the undesirability of allowing a pensioning body to be so constituted that its policy can be directed by succeeding political parties, who have used promises of increased pensions for party purposes.

3. The decisions of that Board should be final and it should be responsible only to Parliament.

4. No pensionable member of the Canadian Militia should be retired or discharged from Active Service until after receiving the first payment on account of pension.

N. B. In many cases hardship has occurred when discharge has taken place and pay has ceased, sometimes, long before the first payment of pension has been made.

5. No pension should be capable of being assigned, charged, attached, or commuted.

²¹ Canadian pensions legislation is still in process of formation.

N. B. A pension should be the inalienable property of the person to whom it is granted, for the protection both of the grantee and of the State. Should the grantee be allowed to dissipate it, public sentiment would probably necessitate a further provision by the State, or failing that, the grantee would almost certainly become a charge upon private charity.

6. The pensions provided for the Permanent Force by the Militia Pensions Act or for other governmental services, and depending upon length of service should be awarded separately and without reference to such pensions as members of that Force may become entitled to as the result of Active Service.

N. B. The pensions provided for members of the Permanent Force are contributory and form part of the contract of enlistment in that force, which must be fulfilled.

7. All pensions to members of the Canadian Militia disabled on Active Service should be awarded in direct proportion to the impairment of capacity for earning a livelihood in the general market for untrained labor. Unreasonable refusal to accept an operation which would result in a lessening of a disability should be ground for a corresponding reduction of pensions. Decision as to unreasonableness to rest with D. M. S.

N. B. Men enlisting for Active Service in the Canadian Militia as privates bring to the service of their country a healthy body. The previous occupation of the recruit is not recognized as having any reference to the service which the soldier could give the State, unless it secures for him a higher rank than that of private, in which case the return made to him by the State in pay and pension is proportionately increased. The private soldier then is looked upon as offering merely a healthy mind and body to the public service. For practical purposes the market for healthy bodies is said to be the 'general market for untrained labor'. Upon leaving the Service any physical or mental disability which may have been suffered is estimated according to the extent by which it reduces the capacity of the individual concerned for earning a livelihood in the general market for untrained labor. It is to be noted that it is the impairment of capacity for earning, without reference to the former occupation or income, which is to be determined.

8. A Disability Table should be carefully prepared, so as to provide an accurate and uniform basis for the guidance of Medical Boards and

others, in determining the degree of incapacity for performing untrained labor.

N. B. It is the duty of medical officers to establish the physical condition of soldiers at their entrance to the public service, and at their exit from it. In order to assist them in estimating the extent to which a given disability reduces the capacity of an individual to earn his livelihood in the general labor market a Disability Table largely based upon the experience gained in the administration of workmen's compensation acts in Europe and elsewhere, should be prepared. By employing such a table as a guide, medical officers will ensure accuracy and uniformity in their findings, and as a result, will help to secure equity in the amounts of pensions granted. Such a table is now being prepared by this Board and will be completed shortly (see Appendix F-37; pp. 73-74).

9. A disabled member of the Canadian Militia should be pensionable to the extent to which the disability is due to Active Service either in the Canadian Force, or in any other Force to which the member is seconded, whether such disability is directly and entirely due to such Service, or has only been aggravated thereby.

N. B. Under Canadian social organizations, private citizens must bear for themselves the risks of disabling illness or accident to which all human beings are subject. It is but fair, when a private citizen is engaged on public service that, while he continues to bear his own risks, all risks resulting directly from disabilities which he incurs as a result of his public service, should be borne by the nation of which he is a member, and for which he has served.

10. Until the disability has been relieved and reconstituted, as far as possible, by treatment, functional re-education, and artificial appliances, and the incapacity has thus been brought to a state of finality, only a temporary pension should be granted, renewable at periods of from six to twelve months. No disability to be called insurable unless it consists of a mutilation or suppression of an organ; after ten years France considers a disability to be permanent. At any time with increase of disability, a claim may be made for readjustment of pension.

11. The educational authorities should be obliged to report every case in which they have reason to believe that a child's pension is not being fairly and properly expended for the benefit of the child.

12. No deserter should be pensionable.

13. The State should, if and when necessary, relieve disabled pensioners from any extra cost, which they might otherwise incur by reason of their disability, in respect of Government Annuities and Life and Accident Insurance for limited amounts.

N. B. A disabled man is at a disadvantage in buying insurance or an annuity of any sort for two reasons: first, because his disability may reduce his expectation of life, or make him specially liable to accident, and secondly, because the result of an additional accident may increase the resulting total disability out of all proportion to the effect immediately resulting from the second injury; for example, a man blind in one eye is but slightly disabled; if he loses his other eye, he immediately becomes totally disabled, although the second accident was only equal in its effect to the first, since it was only the direct cause of the loss of one eye. These are distinct disadvantages and, in so far as they result from disabilities incurred in the public service, their cost should be borne by the State. This does not, however, imply that the State may be called upon to assist disabled men in obtaining insurance for indefinite amounts. The amount of insurance for which State aid can be obtained should be in proportion to the pension awarded to the individual concerned, and should be limited as may be determined by the pension authorities.

14. Rules of procedure, both for officials (lay and medical) and for the public, as to all matters pertaining to the administration of the pension provisions and including other advantages offered returning soldiers, should be prepared and published in convenient form, to facilitate the work of the Pensions Board.

15. The present pension provisions as contained in paragraphs 641 to 648 inclusive, of the Canadian Militia Pay and Allowance Regulations, 1914, are, it is thought, in some respects inadequate and unsatisfactory, and the following are recommended in substitution for them, as covering the additions and amendments which seem to be most essential.

Disabled Member of Canadian Militia shall be Pensionable as follows:

(a) A member of the Canadian Militia recommended for retirement or discharge on account of disability, whether wholly due to, or only aggravated by, Active Service, shall be pensionable, to the extent to which

such disability is due to Active Service, in direct proportion to the impairment of capacity for earning a livelihood in the general market for untrained labor, at the following rates:

<i>Rank</i>	<i>Rate per Annum</i>
1. Rank and File	\$360
2. Corporal	384
3. Sergeant	432
4. Squadron, Battery or Company Sergeant Major	468
Squadron, Battery or Quarter Master Sergeant	
Color Sergeant	
Staff Sergeant	
5. Regimental Sergeant Major, not Warrant Officer	528
Master Gunner, not Warrant Officer	
Regimental Quarter Master Sergeant	
6. Warrant Officer	576
7. Lieutenant	660
8. Captain	816
9. Major	960
10. Lieutenant Colonel	1,200
11. Colonel	1,440
12. Brigadier-General	2,100

N. B. These rates are arrived at by adding \$96 per annum to the pension now payable to each rank, up to and including that of Captain. It is also proposed to make the rate for a Corporal a little higher than that for the Rank and File, also to increase the rate for a Lieutenant beyond that for a Warrant Officer.

The proposed rates are based upon the opinion that the present provision for the Rank and File is inadequate. In case of total incapacitation the pension should be sufficient to provide a decent livelihood. For that purpose not less than \$360 per annum is thought necessary. If the rate for the Rank and File is increased, it is necessary to increase the rates for the other ranks below that of Major, in order to preserve the present distinction between them, but it does not appear necessary to increase those rates in exact proportion to the increase for the Rank and File; nor to increase the rates for the higher ranks at all.

(b) The proportion of the above rates to be paid in each case shall be determined, according to the percentage of impairment of capacity, under the following degrees:

<i>Degrees</i>	<i>Per Cent.</i>
First Degree	100
Second Degree	80
Third Degree	60
Fourth Degree	40
Fifth Degree	20
Sixth Degree	Under 20

N. B. This does away with the present distinction between those rendered incapable in action, etc., and those rendered incapable in training, etc.

It is submitted that this distinction should not be made, as, after enlistment, all are subject to military discipline, must go where they are sent, and do what they are told, and, when disabled, whether while training or fighting, should receive the same treatment.

The number of degrees awardable has been increased to six, as it is clear that, unless a sufficient number is provided, individuals of widely varying incapacity must receive the same pension, and dissatisfaction is sure to result.

Gratuities in lieu of Pensions:

(c) Where the disability is less than ten per cent., a gratuity of not more than \$100 may, at the discretion of the Pensions Board, be paid in lieu of pension.

N. B. It frequently happens that an individual has received some slight injury insufficient to entitle him to a pension which may be renewed, but sufficient to give him a just claim for some consideration. The payment of a gratuity provides a convenient method of finally settling the claim in such a case.

Attendants:

(d) Where the disability is great enough to require the *constant* services of an attendant, the rates under the First Degree may be increased by one-third, and where the disability is great enough to require the *occasional* services of an attendant, the rates under the First and Second Degrees may be increased by one-sixth.

(e) A disabled member of the Canadian Militia pensionable under the first, second or third degrees of incapacity, may, in addition to the personal pension as above provided, draw:

1. For his wife, if any, or so soon as he marries, at the rate of one-third of his personal pension.
2. For a child or children, if any of pensionable age, or so soon as born; and for a step-child or step-children, and for an illegitimate child or illegitimate children, and for a child or children, to whom such member stood *in loco parentis*, whether related to such member by consanguinity or not, if any of pensionable age dependent on such member at the time of joining for Active Service, at the rates of:

One-sixth of the personal pension for the oldest child.

One-eighth of the personal pension for the second child.

One-tenth of the personal pension for the third and each other child.

3. If he is unmarried or a widower, for a woman who has been receiving separation allowance, or subsistence allowance, or assigned pay, as if a wife, and is still entirely dependent on him, at the rate of one-third of his personal pension.
4. If the father of, or the member standing *in loco parentis* to, the child or children provided for in sub-section (2) is not drawing a pension for a wife or for a woman such as sub-section (3) provides for, he may, until he marries or re-marries, draw for the only or eldest child of pensionable age a further pension at the rate of one-sixth of his personal pension.
5. For a parent or parents, or for any person or persons, who, at the time such member joined the Canadian Militia for Active Service, stood *in loco parentis* to such member; according to the proved degree or degrees of dependency, a person with an income of less than \$500 surely is dependent, either existent or when it may arise, at a rate, or rates, not exceeding, in the whole, one-third of the personal pension.
6. At the discretion of the Pensions Board, the pension, which a member of the Canadian Militia disabled on Active Service may draw for any of the aforesaid dependents, may be increased, lessened or discontinued according as the dependency of such dependent increases, lessens or ceases; provided that it shall not for any dependent exceed the amount which may be drawn as above provided for such dependent; and provided that the maximum amount for which any such member shall be pensionable, both personally and for all dependents, including the increase for an attendant, if any, shall not, in the whole, exceed twice the amount of the personal pension.
7. Should any member of the Canadian Militia disabled on Active Service be, or become, in the opinion of the Pensions Board, unworthy or unfit to receive it, the pension, or any part thereof, may, at any time, at the discretion of the Pensions Board, be withheld, or discontinued, or paid to the wife or husband, or to any of the dependents of such member, or to a legally appointed guardian for the benefit of the person or persons for whom such member would otherwise have received it.
8. In all cases the claim for a personal pension must be made within one year of the date of the appearance of the disability upon which the claim is based, unless special reasons are shown which, in the opinion of the Pensions Board, are sufficiently strong to justify an exception.

N. B. In civil life a man may support whom he will and can, provided, however, that he must first fulfill his obligations to his immediate family. The pension awarded to a disabled man, on account of his incapacity

tion, is part of the attempt made by the State to rehabilitate him so that he may compete with his fellow citizens and suffer through war (no more than all of them must do.) A pension will be more likely to accomplish this object in the lower degrees of incapacity than in the higher. Therefore, a pensioner who suffers from an incapacity of sixty per cent. or over, should, besides his personal pension, receive the other pensions provided for as above. He should be pensionable for a wife and children, not only present, but future, in order to encourage him to marry and have children; also for step-children, illegitimate children and children to whom he stood *in loco parentis*, of pensionable age who were dependent on him when he joined for Active Service. If his 'unmarried wife' has been receiving separation allowance, subsistence allowance, or assigned pay, and is still entirely dependent on him, it is logical that he should be pensionable for her. He should also be pensionable for his parents, or for those who at the time he joined for Active Service, stood in the place of his parents, according to proved dependency whether present or future. Obviously it is necessary to provide that the pension he may draw on account of dependents may be varied or discontinued according as the dependency of each dependent varies or ceases. The maximum awardable to any one pensioner should, it is thought, be limited to twice his personal pension, amounting for the Rank and File to \$720 per annum, which is considered to be the average amount which a sound man may earn per year in the general labor market of Canada. It is desirable to insist that a claim for a personal pension should be made as soon as possible after a disability appears, as it is extremely difficult for medical opinion to decide upon the cause of disabilities which are not examined soon after their origin.

(f) When a member of the Canadian Militia has been killed in action, or has died from injuries received or illness contracted while on Active Service, the dependents of such member shall be pensionable as follows:

1. A widow, at the same rate at which the deceased, if alive, would have been personally pensionable, under the First Degree of disability.
Should she re-marry (or take the veil?), her pension shall cease, but she may, at the discretion of the Pensions Board, be granted a gratuity to an amount not exceeding the equivalent of two-years' pension.
2. A child or children, and a step-child or step-children, and an illegitimate child or illegitimate children, and a child or children to whom the deceased stood *in loco parentis*, whether related to the deceased by consanguinity or not, if any of pensionable age, at the same rate or rates at which the deceased, if alive, would have drawn for such child or children, under the First Degree of disability.
3. A child or children, such as provided for by the last preceding sub-section, if an orphan or orphans of pensionable age, at double the rate or rates at which the deceased, if alive, would have drawn for such child or children, under the First Degree of disability; and such pension or pensions shall be paid to legally appointed guardians for the benefit of such child or children.
4. If the deceased was at his death unmarried, or a widower, a pension may be granted to a woman if she was entirely dependent on him and had been receiving separation allowance, or subsistence allowance, or assigned pay, as if a wife, or for whom he had been drawing a pension, as for a wife, at the rate at which he would, if alive, have been personally pensionable, under the First Degree of disability. Should she marry, her pension shall cease, but she may, at the discretion of the Pensions Board, be granted a gratuity to an amount not exceeding the equivalent of one year's pension.
5. A parent or parents, or any person or persons who, at the time the deceased joined the Canadian Militia for Active Service, stood *in loco parentis* to the deceased, according to the proved degree of dependency, either existent or when it may arise, at a rate or rates not exceeding, in the whole, the rate at which the deceased would, if alive, have been personally pensionable, under the First Degree of disability.
6. At the discretion of the Pensions Board, the pension of any of the aforesaid dependents of the deceased may be increased, lessened or discontinued, according as the dependency of such dependent, increases, lessens or ceases; provided that it shall not, for any dependent, exceed the amount above provided for such dependent, and provided that the maximum amount, for which all the dependents of the deceased shall be pensionable, shall not, in the whole, exceed one and one-half times the amount for which the deceased would, if alive, have been personally pensionable, under the First Degree of disability.
7. Whenever a reduction of pensions is necessary, in order to bring the total amount of the pensions of all dependents of the deceased to the aforesaid maximum, the pension or pensions of the dependent or dependents provided for by sub-section (5) shall first be reduced *pro rata*, or cancelled, as may be necessary, and if, and only when, a further reduction is necessary, the pensions of children shall be reduced *pro rata* as may be necessary.

8. Should any dependent or dependents of the deceased, in the opinion of the Pensions Board, be, or become, unworthy or unfit to receive a pension or pensions, such pension or pensions may at any time, at the discretion of the Pensions Board, be withheld, or discontinued, or paid to a legally appointed guardian for the benefit of such dependent or dependents.
9. All pensions payable to dependents of the deceased shall be payable in advance and shall take effect from the day following that on which the deceased dies, and a gratuity equivalent to two months' pension shall in every case be added to, and paid with, the first payment.

(g) All pensions may be paid monthly in advance.

(h) Neither pension nor gratuity shall be paid on account of, or to, any child over sixteen years of age, if a boy, or over seventeen years of age, if a girl, unless the Pensions Board is satisfied either:

1. That the child is, owing to mental or physical infirmity, incapable of earning a livelihood; in which case the pension may, at the discretion of the Pensions Board, be continued until the child is twenty-one years of age, after which a subsidy of equal amount, in lieu of the pension, may, at the discretion of the Pensions Board, be paid to an approved institution, for the care of the child, so long as the child remains an inmate thereof, or:
2. That the child is in good faith following a definite course of instruction in an approved secondary school, technical school, or university; in which case the pension may, at the discretion of the Pensions Board, be paid until the child is twenty-one years of age.

[Advisability of establishing business for soldiers' children or dependents.]

16. In addition to the award of pensions the methods adopted for the return of members of the Canadian Militia from active service to civil life should secure the following results:

- (a) Reduction of physical disability to a permanent minimum by appropriate medical treatment.
- (b) Instruction in various suitable occupations in order that they may become employable and self-supporting.
- (c) Assistance to find employment or occupation.

17. The responsibility for the fulfilment of these provisions should rest with the Dominion Government, who should provide the medical service, hospital treatment, and educational and

other facilities necessary for their accomplishment.

18. To secure prompt, adequate and coordinated action, the direction of all measures adopted for the return of members of the Canadian Militia to civil life should be placed under the general direction of a central administrative body.

19. The composition of that body should be such as to remove it from all possibility of its being influenced by party politics. It should be composed of not more than five members, who should be chosen for their outstanding ability and capacity for administration. They should be adequately paid for their services, and if necessary should devote their whole time to the work.

20. The measures to be adopted by such a body should be framed with the fullest recognition that Canada has an obligation to do everything necessary to rehabilitate all members of her Militia who have incurred bodily or mental disabilities resulting from Active Service, so that, by reason of such disabilities, they shall suffer no more than every Canadian must do.

In establishing the facts definite machinery for doing so must be stated by which the pension ability of dependents will be decided; the body responsible for the administration of pensions should be enabled to make full use of local authorities, and, perhaps, of local tribunals. Whenever possible the applicant for pension should appear before it and give evidence under oath. Application for pensions to be handled quickly. No discharge till first payment of pension—separation allowances to continue till it be paid.

Disability Table.

The following table, with its proposed instructions to Medical Officers is capable of giving useful service until a more complete table is adopted; in some respects it requires elaboration. The authorities consulted in its compilation are given in the following list. Of them, No. 4, the 'Guide-Barême', is the most important. Golebiewski's book, No. 8, 'Diseases caused by Accidents', and No. 5, Ollive and

Meignen's 'Traité Médico-Légal des Accidents du Travail' are useful works of reference. They are constantly employed in the estimation of injuries in connection with the operation of Workmen's Compensation Acts.

(For France, see Appendix G-62, G-63.)

(For Canada, see Appendix G-64.)

1. Brouardel; Les Blessures et les Accidents du Travail. J. B. Baillière et Fils, 19, rue Hautefeuille, Paris. 1903.
2. Brouardel; Les Accidents du Travail—Guide du Médecin. J. B. Baillière et Fils, 19, rue Hautefeuille, Paris. 1903.
3. Ch. Remy; L'Évaluation des Incapacités Permanentes Basée sur la Physiologie des Fonctions Ouvrières des Diverses Parties du Corps. Vigot Frères, Éditeurs, 23, place de l'École de Médecine, Paris. 1906.
4. Guide-Bâre des Invalidités. République Française. Ministère de la Guerre. H. Charles Lavauzelle, 124, boulevard Saint-Germain, Paris. 1915.
5. Ollive and Le Meignen; Traité Médico-Légal des Accidents du Travail. J. B. Baillière et Fils, 19, rue Hauteville, Paris.
6. Hermann Engel; Die Beurteilung von Anfallsfolgen nach der Reichsversicherungsordnung; ein Lehrbuch für Ärzte. Urban und Schwarzenberg, Berlin. 1913.
7. Pearce Bailey; Diseases of the Nervous system resulting from accident and injury. Sidney Appleton, London, 1906.
8. Ed. Golebiewski; Diseases caused by Accidents. W. B. Saunders & Co., Philadelphia. 1900.
9. Instructions to Examining Surgeons. Government Printing Office, Washington. 1913.
10. Wyatt Johnston; On the Estimation of Disability and Disease due to Injury. The Montreal Medical Journal, page 181, No. 29. April, 1900.
11. Bulletin No. 126 of the U. S. Bureau of Labor Statistics. Workmen's Compensation Laws of the United States and Foreign Countries. Government Printing Office, Washington. 1914.
12. Fergie et Jeanbrau. Masson & Cie. 1913.

Medical Boards' Instructions to Medical Officers

Medical Officers are instructed that, in answering question 24 of Army Form B 179, Canada (Appendix F-39), the extent of a soldier's disability is to be estimated in terms of his incapacity for earning a livelihood in the general market for untrained labor.

The accompanying table is provided to assist Medical Officers in estimating the extent of the incapacity resulting from various disabilities. It will be valuable in assisting Medical Officers to arrive at reasonable and uniform estimates.

In using the table, it is to be remembered that the disability resulting from complete loss of function of an organ is the same as the disability resulting from the loss of the organ itself.

A disability is to be estimated at a higher rate when the dominant limb of a pair is affected; for example, a right arm in a right-handed man, or a left arm in a left-handed man; as a general rule the maximum at which a disability may be estimated is stated in the table.

Whenever it is possible to do so, Medical Officers will accompany their estimate of the extent of the total or partial disability by an estimation of the period for which a total or partial disability may be expected to persist.

The amount of time required for the proper prosecution of treatment is to be considered in estimating the incapacity resulting from a temporary disability.

Where more than one disability exists in an individual, the total disability resulting is not to be arrived at by a simple addition of the percentages at which each individual disability is assessed, but by an estimation of the total disability existing in the person concerned, and, by an inspection of the table, of the extent of the incapacity which it entails.

Since this table is a small one, many disabilities are not mentioned in it. When it becomes necessary to estimate the extent of the incapacity resulting from a disability not mentioned in the table, Medical Officers will do so by comparing the disability in question with one of equal gravity which is mentioned in the table, *e. g.*:

The disability caused by the severing of the musculo-spiral nerve, resulting in wrist drop, may be estimated as being approximately equal to the disability resulting from an ankylosis of the elbow in a bad position, and, therefore, as being equivalent to a disability of fifty per cent.

It must be clearly understood that the figures given in the table are only for the guidance of Medical Officers, and that they may be reasonably increased, or decreased, in accordance with

conditions which may complicate the disability under consideration, *e. g.*:

The incapacity resulting from an ankylosis complicated by pain, must be rated at a higher figure than that resulting from a similar injury unaccompanied by pain.

There here follows the proposed Disability Table for the use of medical officers of the Canadian Expeditionary Force:

<i>Head</i>	<i>per cent.</i>
Epilepsy, fits occurring several times per day	100
Epilepsy, fits occurring every two or three weeks	50
Insanity, total	100
Insanity, partial (Mental detriment or other appropriate phrase)	80
Loss of portion of cranium	20-30
Loss of both eyes	100
Loss of one eye	33
Loss of nose	20-30
Total loss of hearing	50
Deafness of one ear	15
Loss of tongue	60
Total paralysis of facial nerve	20
Almost total loss of teeth	20

<i>Upper Extremities</i>	<i>per cent.</i>
Loss of middle, or ring, or little finger	10
Loss of index finger	15
Loss of thumb (with metacarpal bone)	30
Loss of all fingers except one, on both hands	100
Ankylosis of the wrist, in good position	20
Ankylosis of the wrist, in bad position	40
Loss of one hand	70
Loss of both hands	100

<i>Upper Extremities Continued</i>	<i>per cent.</i>
Ankylosis of an elbow in good position	30
Ankylosis of an elbow in bad position	60
False joint at an elbow	50
Loss of one arm, below elbow	70
Loss of one arm, above elbow	75
Loss of both arms	100
Disarticulation at the shoulder	80
Ankylosis of the shoulder joint	50
False joint at a shoulder	50

<i>Lower Extremities</i>	<i>per cent.</i>
Loss of any toe other than big toe	5
Loss of big toe	10
Ankylosis of big toe, in good position	10
Ankylosis of big toe, in bad position	20
Loss of one foot	60
Loss of both feet	100
Ankylosis of ankle, in good position	20
Ankylosis of ankle, in bad position	50
Loss of leg	60
Loss of thigh at upper third	70
Ankylosis of knee joint, in good position	30
Ankylosis of knee, in bad position	60
Fracture of thigh with slight (one-inch) shortening	10
Disarticulation at the hip joint	80

<i>Miscellaneous</i>	<i>per cent.</i>
Loss of any two limbs	100
Ventral hernia	15
Inguinal hernia	10-30
Tuberculosis, in early stages	50
Tuberculosis, incurable	100
Chronic bronchitis	30
Chronic cystitis	70

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**Publications of the
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**Tourvielle; A Trade School for
War Cripples**

Gustave Hirschfeld

Director of the École Tourvielle, Lyons, France

An abridged translation by
Gladys Gladding Whiteside



The Red Cross Institute for Crippled and Disabled Men
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Tourvielle; A Trade School for War Cripples

The first man in France to propose trade training for war cripples was Édouard Herriot, Mayor of Lyons, writing in the *Paris Journal* of November 23, 1914. On November 30, M. Herriot obtained the approval of the municipal council of Lyons for his plan to establish a school where disabled men could be taught new trades. On December 16, two weeks later, the school opened its doors.

This rudimentary school, improvised in an eighteenth century building belonging to the city, was typical of the energy with which M. Herriot carries out his plans. He might have waited until the plaster was thoroughly dry, the floors were well waxed, and all the benches in place, when, with the concierge at the door, the director in his office, the teachers at their desks, he could have received the pupils with proper ceremony; but M. Herriot does not like to wait. Instead, he seized by the hand the first pupil who appeared, led him into the midst of the confusion of boards, pipes, bags of lime, and cans of paint which covered the floors, and said to him, "Here is the school."

The difficulties which he encountered in organizing the school and the principles which guided him have been explained by M. Herriot in numerous articles and prefaces. They have been discussed in greater detail by Dr. Carle, the first physician-in-chief of the school, in *Les Écoles professionnelles de blessés*, a book so full of sound principles and practical suggestions that it has been a *vade-mecum* to all followers in the field. Dr. Carle shows clearly why trade training was chosen to solve the problem of the *mutilés*, and why the idea of placing them as apprentices with private employers was abandoned in favor of a school.

The first pupil, welcomed amid the rubbish left by painters and plasterers, was rapidly followed by others. In ever increasing numbers they came until the old building in the rue Rachais and the sheds built against its garden walls were full to overflowing. Not many weeks passed before it was apparent that a second school would have to be opened to keep up with the demands for admission.

To house his second school the Mayor of Lyons resolved to use an abandoned farm property which the city had recently acquired. This was situated on the outskirts of the city, on the chemin de Tourvielle, just where the suburbs fray off into the open country, and consisted of fourteen acres of land and a dilapidated pile of buildings. Much had to be done to turn it into the semblance of a school, but nothing could daunt M. Herriot. With all the masons, carpenters, plasterers, tinsmiths, and painters he could collect, he set to work on the alterations. Windows and roofs were mended, new windows were cut, partitions were taken down, stairways were added. Light, air, and sanitation were introduced everywhere. By May 14, 1915, the classes in shoemaking could be transferred from the old school to the new, and new men could be received for training in horticulture. On June 2, the tailors were moved over, and on July 9 the carpenters, so that there remained at the rue Rachais only the classes in accountancy, book-binding, and toy-making. On July 11, M. Justin Godart, Under-secretary of state for the medical service, formerly opened the École de Tourvielle.

The development of the new school paralleled that of the old. By October it had a hundred pupils and was obliged to turn away applicants. The Mayor and Board of Directors soon found

22 July 1893

Red Cross. Institute for the Crippled and Disabled Men 6-1-18

that they must either enlarge their plant or say to the victims of the recent campaigns in Artois and Flanders, "We are sorry, but you got your wounds too late." Facing this situation, they decided to open new courses and to build large wooden pavilions to house not only these but also the already established classes. By putting all the shop work in these new structures and using the old main building solely for a living hall, they could accommodate many more pupils. M. Herriot gave particular attention to the plans and insisted that each trade be housed in its own building by itself, in surroundings not only practical but pleasant. It is needless to say that his plans were carried out with the greatest despatch.

The new courses, added to the curriculum one after the other as the need arose, were in the manufacture of artificial limbs and orthopedic appliances, in wireless telegraphy, in making *galoches*, that is, crude peasant shoes with wooden soles and cloth tops, and in fur work.

A visitor to the school today, entering by a well-kept avenue bordered with ancient lindens, passes the experimental gardens, the stable, the greenhouse, the nursery, the orchard, and the rabbit warrens before coming to the main building. Alterations have not made the old structure a handsome building on the outside, but the interior is conveniently arranged and the rooms are large, high, and full of light. In the spacious entrance hall men are playing billiards; on one side are the dining-rooms and on the other the sleeping quarters of men for whom walking is difficult. Everything is not only scrupulously sanitary but comfortable and attractive. White spreads conceal the severity of the iron beds; there is a stand for every man in which he can keep his personal belongings; running water flows from nickel faucets into luxurious porcelain bowls.

Beyond the entrance hall is the infirmary, which has been fitted up by the class in carpentering with ample medicine cabinets, a table where nurses can change simple dressings, and a bed for a suspected case which needs to be isolated. Stretchers and discarded crutches stand in the corners, silent witnesses to the victories of prosthesis. The other sleeping rooms are reached by the broad stairway; the kitchens, by going

through the main dining-room. A private stairway leads to the director's office, to which the pupils always have free access. Baths and showers are in a little separate building.

To reach the workshops, the visitor goes through the horticultural gardens to the 'village', which at present consists of eight separate wooden structures or pavilions, each one named after the person or association whose philanthropy made its construction possible. There is, for instance, the pavilion Hauvette-Michelin, named after Mme. Hauvette-Michelin, the pavilion of the Arsenal, so named because the employees of the arsenal support it by their monthly contribution, and the pavilion of the Electric Light Workers. A sign placed underneath indicates the trade taught there. Two pavilions are given over to the manufacture of orthopedic and prosthetic appliances, the iron work and the fitting being done in one, and the wood and leather work in the other. One pavilion is for making shoes and one for *galoches*. The pavilion for wireless telegraphy contains also a lecture room, where men from all the trades unite in the evening. The tailors have divided their pavilion into a work room, a cutting room, and a little salon for trying on, which has been attractively equipped by their companions, the cabinet-makers. The cabinet-makers' own shop is of course all that could be desired. In the same pavilion with the furriers' shop, which is a reduced model of the workroom of the great Lyons fur houses, are the draughting room and a lecture room for the horticulturists. All are spacious, well-ventilated buildings, warmed by huge stoves, lighted by electricity, and equipped with electric power for machines.

When they were first organized, both of the Lyons schools for disabled soldiers were in city-owned buildings and were closely connected with the city administration, but they had an independent budget. Since April 1, 1917, their receipts and expenses have been incorporated in the municipal budget. Control of the general policy of the two schools is vested in a board of directors appointed by the Mayor. From a military and medical point of view the two schools constitute one institution, 'Auxiliary Municipal Hospital No. 202', and have one military physi-

cian-in-chief, but for technical instruction each school has its own director. Requirements for admission and the rules of the house are formulated in a set of rules and regulations given below.

RULES AND REGULATIONS

Admission

The Lyons vocational schools for wounded soldiers are open to men whose disability puts them in one of the first five classes eligible for discharge with pension. Men from any part of France, from the colonies, and even from the allied nations are accepted, but preference is shown to applicants from Lyons or the vicinity and from the invaded departments.

Any wounded soldier who wishes to enter the school should send in his application to the Mayor of Lyons, or to the physician-in-chief of the schools, 41 rue Rachais, Lyons. He will receive in reply a questionnaire in the form shown below, which he should fill out and return to the physician-in-chief. His application will then be passed on by the physician-in-chief, acting for the board of directors, the decision being based on the former occupation of the candidate, his object in entering, his present physical capacity, and the places open.

Form of Questionnaire

1. Name
2. Born at
3. Married
4. Regiment
5. Disability
6. When received
7. Hospital
8. Are you discharged with pension?
9. Or recommended for discharge?
10. Have you an artificial limb or other appliance?
11. Former occupation
12. Desired occupation
13. Have you an elementary school diploma?
14. Other diplomas
15. Present address
16. Home
17. Remarks and references

Signature place date

At the present time the following trades are taught in the two schools:

At the École Joffre . . . Bookkeeping, stenography, and typewriting
 Paper box-making and book binding
 Toy-making
 Bead work

At the École de Tourvielle Shoemaking

Galoche-making
 Tailoring
 Carpentry and cabinet-making
 Fur work
 Manufacture of artificial limbs and orthopedic appliances
 Wireless telegraphy
 Horticulture

The average length of the course is six months for bead work; eight months for wireless telegraphy, galoche-making, and bookkeeping; one year for shoe-making, fur work, paper box-making and horticulture; and eighteen months for tailoring, carpentry, artificial limb making, and toy-making.

Support and Remuneration

In general, pupils are required to live in the school, but in exceptional cases they may attend as semi-boarders or as day pupils. Instruction, board, lodging, and clothing are furnished free of charge and no deduction is made from a man's pension. Pupils not yet drawing a pension or temporary allowance receive one franc a day, paid fortnightly, from the school.

Work turned out by the apprentices in a shop is paid for according to its worth, and the money is divided each month among the apprentices in proportion to their productive capacity. Before the division is made, however, fifteen per cent. of the total is deducted as the pupils' contribution to the running expenses of the shop.

Leaves, Vacations, and Permissions

No pupil living in the school can leave the grounds without permission, except on Sundays and holidays from seven in the morning to nine at night, and on Thursdays from one to nine. At Christmas and Easter the school has a week's vacation and in summer ten days. Rounds are made in the evenings of holidays, and any unexplained absence is punished.

Pupils receive uniforms from the school which they are required to wear both inside and outside the walls. They must salute officers, and they can enter cafés and restaurants only under the same conditions as soldiers in hospital. If they have not yet been pensioned, they can travel at the military rate; if they are drawing their pension, they can travel on half fare when going to their homes.

The school can send away any pupil whose work or conduct does not give entire satisfaction.

Rules of the House

Pupils rise at six in summer, six-thirty in winter and go to bed at half past nine. They work from eight to

twelve and from two to six. Breakfast is at seven, and consists of coffee, hot milk or soup, and bread with cheese or chocolate. Luncheon is at twelve-fifteen, and consists of meat, a vegetable, dessert, and a quarter liter of wine. Dinner is at six-fifteen, and with the addition of a thick soup is the same as luncheon.

All pupils are required to attend the classes in general schooling which are held from seven to eight every evening. A general library and special trade libraries are at all pupils' disposal.

After working hours pupils may do as they please except that they may not leave the grounds. They may play ball, cards, dominoes, etc. in the recreation rooms, or write their letters in a room reserved for that purpose. Games and writing paper are supplied to them for the asking. Pupils who have special permission may work in the shops after dinner till nine o'clock.

On account of the danger of fire, smoking in the shops is absolutely forbidden.

Visitors can be received after working hours and occasionally during work when the consent of the instructor has been obtained, but under no pretext can they make a long stay in the shops.

The school supplies each man with a wool uniform, a canvas uniform, a cloak, hat, shoes, underwear, and the necessary toilet articles. Fresh underwear is furnished every week, and each man is required to take a bath or shower once a week. The services of a barber are free.

Pupils are forbidden to enter the kitchen on any excuse or to pick any flower or fruit without the consent of the head gardener.

The foreman of each shop sees that discipline is maintained during working hours. He supervises the work of his pupils, when necessary urges them to greater efforts, sees that the rule against smoking is observed, and reprimands all whose conduct is unsatisfactory. Each evening he hands in to the director a report containing the list of absences, observations on the conduct and progress of his pupils, and suggestions as to changes in teaching methods or equipment. Each month he summarizes for the director the results obtained in his section, and determines how the profits of the shop should be divided on the basis of each pupil's productivity.

Pupils are advised to practise rigorous saving in order that when they leave they may have the necessary sum to set themselves up in their trade. It is to help them to accumulate such a sum that all instruction and maintenance are furnished free of charge, that their pensions are untouched, and the work they do as apprentices in the shops is paid for whether it is sold outside or not. Through the agency of the director savings may be deposited in the savings bank, invested in government bonds, or kept in the office safe. Any pupil or former

pupil who has finished his course of apprenticeship in the school will receive the sum of 100 francs on the birth of a child.

By entering the school pupils bind themselves to observe these rules. For any infraction of the rules they will therefore be punished with disciplinary measures ranging from a warning through deprivation of privileges to expulsion. The administration has made the rules for the best interest of the pupils. It confides to them the good reputation of the school, and it hopes that they will be happy, industrious, and well-behaved.

EXPENSES AND RECEIPTS

The estimated budget for the École de Tourvielle amounts to 420,000 francs, divided as follows:

Administrative cost and general expenses	46,000
Food	160,000
Lodging	55,000
Teachers' salaries and cost of production	145,000
Miscellaneous	14,000

Part of the cost of production, which includes the purchase of raw materials and the wages paid to the workmen, is covered by the sale of the finished product. And the food item is slightly reduced by a sum paid to the school by the Army for the maintenance of certain soldiers assigned to the service of the school. After the total cost has been reduced by these amounts, the average cost per pupil per day is about five francs. Let us hope that it will be met by the allowance to the school from the medical service, the subventions from the national government, and from the department, and the gifts of individuals.

To hope that one day Tourvielle will contain facilities for functional therapy as well as for trade training—a combination which wherever it has been tried has produced splendid results—is perhaps too grandiose a dream. May we, at least, be enabled to build new dormitories and shops so that we can offer new courses, say, in saddlery and tinsmithing, and accommodate a great many more pupils. Those whom we have been obliged to turn away number hundreds. If, owing to the rebuff, they became discouraged and renounced their desire for training, the nation has lost just so much productive energy.

The gifts we have received up to now have been numerous and generous. Some have been magnificent; some peculiarly touching. They have come from Lyons and the vicinity, from all France, from Switzerland, from North Africa, from Madagascar. In the list of contributors published in the *Bulletin Municipal*, there are grouped together chauffeurs and judges, universities and associations of policemen, trade unions and great industrial firms. The appeals of the Mayor of Lyons have never been unanswered in the past; they surely will not fall on deaf ears now.

TRADES TAUGHT AT TOURVIELLE

Manufacture of Artificial Limbs

Although the manufacture of artificial limbs and orthopedic appliances was one of the last trades to be started at the École de Tourvielle, it has become one of the most useful and important. Indeed, the shop where it is taught renders now such indispensable services that one can hardly understand how the school managed to exist without it. It studies the needs of the workmen in the different trades, designs useful appliances for them, improves existing models, and executes any special device needed for a certain process. A shop for work of this kind should, it seems, be the nucleus of any school for disabled men. In exchange for the benefits which the pupils receive, they furnish the workmen on prostheses with useful suggestions and create a demand for the product of the shop. When the workmen in the trade are themselves maimed men, they can draw upon their own experience in devising modifications and improvements, and the product of the shop is so much the more useful.

The trade is a suitable one for men who have worked with iron, wood, or leather. In the shop at Tourvielle it employs the talents of mechanics, blacksmiths, wood and metal turners, saddlers, plaster modelers, and shoemakers. It is a well-paid trade, and at present the demand for the product far exceeds the supply.

The very complete equipment for the artificial limb work at Tourvielle was supplied by the Medical Service, which operates the shop as an adjunct to the Center of Surgical Equipment at Lyons. In order to ensure a good output fifteen

trained workmen under army orders are employed in the shop, in addition to the twenty-seven apprentices from the school. Two foremen direct the work. The whole band works so energetically that they are able to turn out each month twenty artificial limbs of the type approved by the Government Commission, from twenty-five to thirty simpler appliances, and seventy to eighty orthopedic shoes, without counting repairs and special temporary appliances.

Several new appliances of acknowledged usefulness have been invented at Tourvielle. M. Louis Lumière has invented a special kind of 'universal pincers', which are very generally used in the Lyons Center of Equipment, and in other parts of France are competing with the pincers invented by Professor Amar and Dr. Estor. Dr. Bouget has constructed so-called 'automatic' pincers, worked by a movement of the opposite shoulder, which are extremely useful for men who have lost both arms, and two kinds of appliances for cases of radial paralysis. Workmen in the shops have designed other excellent models of arms and legs and a large number of tools and devices for special processes in the different trades. The jointed leg of hollowed wood, sometimes called the American leg, is preferred by almost all the men at Tourvielle to the leg of steel and leather furnished by the Government.

A majority of the apprentices in prosthetic work are men who have been injured in the leg. Two good hands seem indispensable for orthopedic boot work, which is largely done by men previously trained in the shoemaking section, but are not so necessary for the work in wood. In fact, a man with an ankylosed elbow was able to do excellent work with a lathe, and another with his right forearm amputated and a partially paralyzed left hand, aided by the Lumière pincers, used both the file and the lathe. Both men have been placed in good situations in artificial limb factories; the first at wood turning, the second as a mechanic. Ten other pupils up to date have finished their apprenticeship and are employed by artificial limb manufacturers of Lyons and Paris at wages varying from seventy-five centimes to one franc an hour.

Shoemaking

The course in shoemaking proper supplemented by orthopedic boot work and galoche-making offers well-rounded training in the shoemakers' craft to those who are willing to pass such a lengthy apprenticeship. Few men who come to the school want to go through this complete course, but there are more applications for plain shoemaking than for any other trade. Countrymen, especially, who have lost one or both legs, have often only one wish for the future—to become shoemakers, and efforts to direct them into another occupation are usually futile. They want to be able to go back to their native village with a trade which will make them independent, but which will not require a large outlay of capital. They want to live at home and have time to dig in the vegetable garden or to cultivate a few grapes. With a fair mastery of the cobbler's trade, a sober, industrious man can add from six to eight francs a day to his pension, and live comfortably in the country.

The first thing apprentices are taught to do is to make their own shoemaker's stirrup and glove. In doing that they learn how to make a waxed thread and to use the awl. Next they are directed to assemble and sew by hand the parts of a pair of slippers, which they are allowed to keep for their own. Coarse brogans are their next problem and then fine boots. After an apprentice has been working a month, he can feel that he is a shoemaker,—he has made a pair of shoes for sale. Doubtless he received help from the teacher on this first pair, but he will need less and less help as time goes on, and after a year, or ten months if he is skillful, he will need only the teaching which practice can give. Some final lessons on cut and style, on the selection of material, on the way to obtain customers, and on price-fixing will enable him to get along by himself under any conditions. If his disabilities are not too serious, he can also have some practice with shoe machinery, thanks to the 'United Shoe Machinery Company of France', which has given to the school the use of a repair bench.

When the school first organized its shop work, it was confronted with the problem of how to find a market for the finished product, but that

difficulty did not exist for long. The modest orders which it secured at first grew steadily larger and more varied—a convincing proof of the skill of its apprentices. Orders for boots and shoes have been placed by the two schools, by the municipal administrations, by military units, by shoe dealers of Lyons, and by private persons. Consignments have been sent into the provinces and Switzerland. And up to May 31, 1917, the apprentices in the shop have received as payment for their work, divided in proportion to their capacity, the sum of 28,000 francs.

This sum shows the efficiency of the methods of production. A better proof of the value of the instruction is in the number of pupils placed in positions or established in their trade. On May 31, twenty-one men who had completed their course at the school were holding good positions, and twenty-seven were working for themselves. Twelve others, having finished their apprenticeship in the shoemaking section, were working on orthopedic boots in the artificial limb shop. The length of the course had been from ten to fifteen months. Before the war, out of these sixty shoemakers, thirty-four were farm laborers, four were masons, four miners, two weavers, two day laborers, one was a stone cutter, one a plasterer, one a road-mender, one a blacksmith, one a cabinet-maker, one a railroad employee, one a painter, one a laundryman, one a butcher, one a tripe-seller, one a nail-maker, one a coachman, one a delivery boy, and one a chauffeur. Two of them have lost both legs, one is helpless because of an injury to the pelvis, thirty-five have had their leg amputated at the thigh, eleven below the knee, one has lost his leg at the knee joint, two have had their sciatic nerve cut, one has had his thigh fractured, and two have been wounded in the feet.

Galoche-making

Galoche-making is a comparatively easy trade, can be learned in a short time, and brings a good return in many rural districts, whether it is practised by itself or in connection with cobbling, or on the side by a man who holds a small position as keeper or janitor. A good galoche-maker can turn out his twenty pairs a day, and earn from five to seven francs. The trade was installed at

Tourvielle through the agency of a manufacturer of Lyons, who equipped the shop and buys up its total output. From March 20, 1916, when the work was started to May 31, 1917, the shop has furnished him 25,000 pairs of galoches. All kinds of wooden-soled shoes which come under the term *galoches* have been made—common neopolitans, boots with heavy extension walnut soles, called 'American style', great arctics lined with cat fur for chauffeurs, and mules lined with red plush and raised on a Louis XV heel for fine ladies.

Men who have lost an arm are in general barred from this course, but two exceptions to this rule have been made. A man who had made wooden *sabots* before the war and was therefore familiar with the use of the scraper showed such determination to succeed that he was allowed to take up the work. He was fitted with a special appliance for holding his work and soon learned to turn out *galoches* soles with great rapidity. The second case was a man who had been a *galoches*-maker by trade and who needed, therefore, to accustom himself to his disability rather than to learn a new trade. His arm was off above the elbow, and he was forty-three years old, an age at which the thought of learning a new trade is repugnant to almost any man. Now with an appliance devised for him by Dr. Bouget, he is little by little recovering his old skill. His output will doubtless be less than it used to be, but it will certainly be sufficient to eke out his pension to the extent of his needs.

Tailoring

The tailors at Tourvielle have all been injured in their legs. One man who has lost the thumb and forefinger of his left hand tried to do the work but had to abandon it and return to his old life on the farm. When his companions have finished their course, they also intend to go back to their native villages, but they will go to make clothes for the villagers. They are all anxious to start in for themselves, but the school advises them to take a position for a time with a master-tailor. Under present conditions, with equipment and material high-priced and difficult to procure, and orders few and far between, the risk of failure is great, and the wiser course is to wait

until better times. Meanwhile, they can grow used to dealing with customers and acquire other valuable experience.

The tailor's trade exacts a long apprenticeship—eighteen months, at least. The first lessons are in the use of the thimble and needle, and are designed to make the fingers supple and to teach the different stitches, basting, overcasting, chain stitch, back stitch, buttonhole stitch, etc. Next comes the construction of a pair of trousers, which the pupil works out for himself under the strict supervision, of course, of the foreman. After a few weeks he is put at a vest, then a blouse, a short coat, and so on, until he understands the construction of any garment and is a good sewer. When he has arrived at this point, he receives lessons in trying on and in cutting, which complete his course. That this method produces good results is attested by the satisfaction of the merchants of Lyons who have bought the output and by the goodlooking uniforms worn by the pupils of the school.

For equipment, the tailors' workroom contains six sewing machines, eight tables, two benches, cupboards, and heaters for pressing irons. The trying on salon is attractively furnished with polished walnut pieces, a carpet, and mirrors. In the cutting-room is a huge table covered with black serge, on which are traced cabalistic signs known only to the initiated.

Fur Work

The course in fur work was started at the request of a number of Lyons fur merchants, who were concerned over the shortage of workmen in the trade. They considered it a sound business measure as well as a humane and patriotic duty to create a supply of trained furriers to take the place of the Germans hitherto almost exclusively employed. The school was glad to open such a course, since the work is done seated and is therefore suitable for men with amputated or paralyzed legs. A committee composed of five of the leading fur merchants of the city aided the school in organizing the course by inviting visits to their shops, by furnishing plans, and by selecting a foreman. After the class was started, they continued their cooperation; they supplied skins on which the pupils could work, paid them

for their work, and promised definite positions to those who finished the course.

Men were at first required to complete a year's apprenticeship and were then employed at five francs a day, the wages usually paid to boys who have worked as apprentices for three years; but graduates of the course showed such proficiency that the time was reduced to ten months, and the beginning wages were raised to five francs fifty or even six francs. As a workman acquires more skill through experience, he can expect to earn seven, ten, or twelve francs a day. 'Equal pay for equal work' is the motto of the employers, and the school asks nothing more for its pupils. It intends to train workmen so well that they can compete on equal terms with normal men.

Carpentry and Cabinet-making

Carpentry has been found too arduous for disabled men and has been practically given up in favor of cabinet-making, which demands less physical effort. Cabinet-making can be practised by men with the left leg amputated, even if the amputation is above the knee, provided a good stump remains and standing does not cause fatigue. It is an excellent trade for former carpenters and other workers in wood, and it is a possible one for any man who has a taste for it and the necessary patience. It is well paid everywhere, in the city and in the country. After an apprenticeship in the trade of a year and a half at Tourvielle, men can start at six or seven francs a day. They can find numerous openings in furniture factories, carriage factories, factories for musical instruments, for aeroplane parts, and for making the interior fittings of railway cars and ships.

The cabinet-making shop at Tourvielle is equipped with a band saw and a rotary moulding cutter, run by electricity—machinery which will be found in almost any factory and with which all cabinet-makers should be familiar. It is hoped that later a plane run by machinery can be added to the equipment. With this simple machinery the foreman has been able to fill orders for many fine pieces of furniture, such as cupboards with sliding doors, desks, period tables, and marquetry boxes, all executed by the

apprentices and illustrative of the efficiency of the instruction.

Pupils are taught first to use their tools, then to construct simple articles of furniture and to acquire a knowledge of the different woods. Each man must also learn to make out a bill for his work from working drawings, basing the cost of the job on the price of materials and the amount of his labor. The greatest attention is given to the construction of working drawings, and the art of design is taught in both theory and practice. Varnishing and staining, which are included in the course, can be done by one-armed men, and are sufficiently well paid to induce men to specialize in that kind of work. It is to be regretted, therefore, that the distance of the school from the town and the difficulties of transportation are obstacles in the way of obtaining work. Excellent results in varnishing and staining have been obtained by one-armed men on furniture made in the school shop, but there is not enough of this to afford good practice for many.

Wireless Telegraphy

A wireless telegraphy section was started at Tourvielle as a result of a conversation between M. Herriot and Colonel Ferrié, technical director of wireless telegraphy in the Army. Colonel Ferrié regretted the lack of good operators and at a time when wireless stations were being multiplied so rapidly. "So you want operators?" queried the Mayor of Lyons, "Good! I will provide them."

A few days later, a complete school of wireless telegraphy had been organized at Tourvielle. Pupils were easily recruited; teachers were found in the seventh regiment of engineers, and equipment was obtained from the radio service of Lyons. Without waiting for accommodations to be built, the class started in a little room in the main building which at other times was used as a smoking and reading room. The pavilion afterwards built for the purpose is divided into five rooms—two private rooms for the teachers, a large classroom, a sound-reading room, and an instrument room. Poles and antennæ of the most modern type have been set up outside.

Technical instruction in the subject is supplemented by lessons in dictation, composition, geography, arithmetic, and algebra, given by a

city school teacher, and the whole course of training is supervised by a lieutenant from the wireless station at Lyons. Pupils can also benefit from practical lessons which they are invited to attend at the University, and from access to the Government stations. With such advantages it is needless to say that they make rapid progress. No man is allowed to enter the class unless he has had schooling corresponding to that required for the elementary school certificate.

There have already graduated from the class eighteen young men, each possessing a State diploma obtained by examination. Five are in Morocco in military or civil stations; ten are divided between the Eiffel Tower and the Lyons station; the other three are in coast stations on the Mediterranean and the Atlantic.

The first graduate, a mere boy who was called to the colors in 1916, had been a waiter and was injured in the right thigh and wrist. The second, though only nineteen years old, had been in the war since the beginning and had never had an occupation. The third, also nineteen, was barred from his old job as messenger boy by the loss of his leg at the thigh. The other graduates had been respectively, a bank clerk, a farm hand, a chauffeur, a waiter, a miner, a butcher's boy, a metal worker, a pork dealer, a sailor, a machine tender, a mason, a store clerk, a coachman, and another farm hand.

Horticulture

Agricultural laborers who lost a limb in the early days of the war were firmly convinced that they would never again be able to work on the land. This attitude of mind made difficult the establishment of a horticultural school at Tourvielle, until a campaign had been waged to restore confidence to the *mutilés*. With this object in view a number of private persons, aided by the Army medical service, held demonstrations in numerous villages around Lyons to show the peasants that agricultural work could really be done by men who had suffered amputation. These demonstrations clearly established that a man who has lost a leg or even an arm, can, when provided with a suitable appliance, reap, dig, and plow with a fair degree of efficiency.

The lesser efforts required in horticulture were, then, easily within the reach of disabled men, and many former farm hands were soon glad to avail themselves of the course at Tourvielle. The school does not attempt to teach the main work of a farm, but aims only to train men as keepers or gardeners of country estates, capable of looking after a small piece of property, of raising vegetables, of pruning a few trees, of laying out flower beds, and at need of caring for rabbits, poultry, and cows.

Artificial limbs and other appliances necessary for this work, which at first were sadly lacking, have been invented in many practical forms. For a man hampered by a wooden leg which sinks into the fresh earth, two modifications of the ordinary peg leg have been devised: one is a wooden leg turned with an enlarged end like an elephant's foot; the other, an idea of Dr. Bouget's, is a *sabot* or wooden sole which can be attached to the bottom of the ordinary wooden leg. For the man whose arm has been amputated, there is a choice of three appliances: the old-fashioned ring and hook, the Jullien tool-holder, and an arrangement of straps devised by Drs. Nové-Josserand and Bouget from photographs of appliances used at Vienna. These straps slip through openings in the point of the appliance sheathing the stump, and can be wound around the handle of any implement. As they permit the handle to be turned in any direction, they are extremely practical for many kinds of work. They are especially useful for pushing a wheel-barrow or drawing a cart.

The most useful all-round working arm for cultivators is probably the tool-holder invented by M. Jullien of Lyons. This consists of a perforated steel cylinder open at one end to receive the handle of the tool, which is fastened firmly in place by a screw through one of the perforations. The other end of the cylinder is attached by a rotary joint to a gimbal joint, which is itself attached by another rotary joint to the stump casing. By means of this system of articulation, a tool guided by the other hand can be moved in any plane and turned on any axis. The Jullien working arm is successfully used by the apprentices at Tourvielle for work with the spade, fork, shovel, pick, rake, and scythe, and is gen-

erally preferred to the old standard ring and hook. However, an improved type of the old hook with an oscillating ring is in other places found very useful.

Appliances perfectly adapted to those more delicate tasks of a horticulturist, such as grafting, budding, and cutting slips, are still to be invented. The Lumière 'universal pincers' are not entirely adequate for this work, nor is the 'vine-grower's hand' invented by Dr. Boureau of Tours, though the latter is the best yet devised for work of this kind. A special appliance for transplanting seedlings, invented by M. Jullien, is used with good results at Tourvielle.

The first pupils in the horticultural section found literally a hard row to hoe. Their experimental gardens were fields of docks and thistles. They had to break the ground, spade it up, and laboriously weed it, before they could lay out their walks and beds, sow their seeds, or plant their shrubs. But they did their work so well that the pupils who came after them found everything ready for a full course in horticulture.

A nursery of 1,500 square meters, containing young quince, almond, and cherry trees, currant bushes, and berry vines, and an orchard of 6,600 square meters give extensive opportunities for teaching tree and fruit culture. In the orchard are three hundred vine stocks, pear and peach trees trained to grow in different forms against a wall, apple and cherry trees, strawberry vines and currant bushes. Flowers are raised in outdoor beds and in a greenhouse, and useful vegetables in all free spaces. There are 5,000 square meters of truck gardens, and ten acres of meadow and pasture. Since pastures are of no use without cows, there were acquired two fine Holland cows which supply the establishment with milk and the horticultural pupils with practice in milking and the care of animals. Raising rabbits for the flesh and for the skins is also carried on.

The period of apprenticeship must usually last through the four seasons, though some pupils with previous experience have been qualified to accept good positions in a shorter time. Two pupils in the class have lost three or four fingers from one hand, a third has had his arm taken off at the shoulder, two others have lost a forearm, one the right and the other the left, and another

has atrophy of the right arm. The rest are all injured in the legs.

Conditions of employment vary in different parts of the country. In general a gardener is allowed a lodging for himself and his family, and has the right to grow what vegetables he needs for his own use, often to keep a goat, chickens, or rabbits. He receives in addition from 80 to 100 francs a month, or more if his wife also works on the place. Requests for good gardeners have come to us from all over France.

General Schooling

In 1915 M. Herriot laid down the rule, "The school teacher should be the first instructor engaged by a school for the wounded." Tourvielle has from the beginning had a school teacher, and evening classes in school subjects have been held regularly from seven to eight every evening except Thursdays and Sundays. Classes are formed by grouping the pupils according to their previous education and their needs. The illiterate have lessons in reading, writing, and arithmetic, while the more advanced listen to lectures on different subjects. The following program has been formulated:

French. French is studied through dictations. In these dictations nouns, adjectives, verbs, etc., are successively prominent, and the rules for their agreement and use are brought out one after the other. The authors chosen give an elementary view of French literature, which is supplemented by oral discussion and suggested reading.

History. The history of France, divided into its main periods, is studied from the point of view of the development of civilization. The larger facts of French history are linked with the main facts of general history.

Geography. The natural divisions of France and then of the world are studied by means of an imaginary journey. In each region visited the pupil learns what the tourist can see there, the merchant buy there, the manufacturer make there, in short, the resources and the interesting facts of each country.

Arithmetic. Arithmetic includes addition, subtraction, multiplication, and division, fractions, proportion, the metric system, calculation of

surfaces and volumes, land measuring, mental arithmetic, and the elements of bookkeeping.

Science. Instruction in science is divided into three parts: 1. Scientific questions relating to different trades, as for example, with respect to the leather trade, the tanning process, the action of tannic acid, the source of the best leathers, etc.; 2. The subject of food—nutritive value of different foods, proper diet, etc.; 3. Simple exposition of the great scientific facts.

Hygiene. Lessons in hygiene treat of the different parts of the human body, the functions of the organs, the principles of right living, common causes of sickness and simple remedies, alcoholism, and the venereal diseases.

Progress of the War. Facts gathered from newspapers during the week are correlated, and maps of the different fronts are drawn on the blackboard. Interesting events in foreign countries are discussed.

PRACTICAL RESULTS

To make good workmen and useful citizens was the aim of Mayor Herriot when he organized the Lyons schools for the disabled. The results show that he has succeeded.

On June 15, 1917, 376 disabled men had finished or were still serving an apprenticeship at

Tourvielle. Of the 190 pupils still in the school, 54 were shoemakers, 16 galoche-makers, 30 tailors, 16 furriers, 11 cabinet-makers, 27 workers on artificial limbs, 22 wireless operators, and 14 horticulturists. Sixty-nine pupils have left without finishing their course, of whom twenty-eight were sent away for intemperance or misconduct, and forty-one gave up the course for various reasons of their own, such as ill health, family matters, desire for independence, opportunity to return to their former position or to obtain employment without delay. The number of men who have completed their apprenticeship and have either obtained positions or established themselves in their trade is 129, including 60 shoemakers, 8 galoche-makers, 7 tailors, 9 carpenters, 18 wireless operators, 12 artificial limb makers, and 15 horticulturists. These are modest figures, we admit, but they might have been larger if we had been willing to give our apprentices only a rudimentary training, and without adequately arming them against discouragement or failure, had sent them out to take their chance with indulgent employers. Each one of the 129 graduates of Tourvielle is a thoroughly trained workman, an artisan who is master of his trade and knows that he can earn a living in it.

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**The Development in England of a State System for
the Care of the Disabled Soldier**

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Training in English Technical Schools for Disabled Soldiers

An educational task of large proportions and unusual features was assumed by the British government in the second year of the war when Parliament passed the Naval and Military War Pensions Act. Prior to this Act, pensions on a very inadequate scale were given to disabled soldiers and sailors, but the state made no provision for training its ex-service men or finding employment for them. This work had been undertaken by voluntary organizations. When public opinion, influenced by what Belgium and France were doing to return their disabled soldiers to industry, insisted that the whole after-care of wounded men should be recognized as a function of the government, Parliament passed the above Act in November, 1915.

The purpose of the Act was two-fold: (1) To make better provision for pensions, grants, and allowances to men in service and their dependents; (2) to provide for "the care of disabled officers and men after they have left the service, including provision for their health, training, and employment." By 'training' was meant re-education for a trade or occupation.

To perform this unwanted task the government had no available machinery and it was forced to follow the lead of the existing societies that had been handling the problem. Even in the matter of separation allowances for the families of enlisted men, funds raised by public subscription relieved the immediate and pressing needs caused by an unprecedented enlistment among the industrial classes dependent upon the wages of the bread-winner called to the colors. A Statutory Committee was appointed by the Act to assume on behalf of the government the work done by voluntary organizations.

Quite naturally the *modus operandi* of these organizations was largely adopted. They had been accustomed to distribute relief by means of local committees composed of ladies and gentlemen in various localities who had the advantage of being in a position to make inquiries into the circumstances of a man's family. Starting with these local nuclei, the Statutory Committee formulated a plan whereby the Local War Pensions Committees, as they are now called, were appointed by the local authorities in such a way as to secure representation on the committees of the varied interests concerned in the rehabilitation of the disabled man, including members of existing relief agencies, local educational authorities, labor organizations, women, and others.

As far as the relief work was concerned the results were quite satisfactory, but in the matter of vocational training they were entirely inexperienced. Considerable impatience was expressed in editorials in leading periodicals because of the delay in formulating a definite and comprehensive plan for giving disabled men a vocational training that would either fit them to return to their old occupations, despite their handicaps, or prepare them for new ones. This was plainly a problem in technical education which the local committee was not fitted to solve and which should have national supervision. The question was where to place that responsibility.

The Statutory Committee thought that the National Health Commissioners could handle the problem, but they demurred on the ground that it was out of their province. Then Sir Alfred Keogh, the Director-General of the Army Medical Service, was asked to assume the re-

NOTE. Apart from the references given in the footnotes, the sources for this paper are chiefly correspondence with English technical schools carried on last summer by Mr. Douglas C. McMurtrie, President of the Federation of Associations for Cripples, and now Director of the Red Cross Institute for Crippled and Disabled Men.

sponsibility. He recognized the fact that it was a task which involved the use of the existing facilities possessed by the technical schools of the country. As it happened he was the president of the Association of Technical Institutes. Accordingly, at a meeting of the Association held in the Imperial College of Science and Technology on October 21, 1916, at which he presided, the question was discussed. In a paper read at the meeting, Major Robert Mitchell, Director of Education of the Regent Street Polytechnic, London, said:¹

It therefore appears desirable, if this problem is to be dealt with satisfactorily, that arrangements will have to be made in all the local centers whereby an advisory committee of doctors, employers and employees be formed, which shall have the power to select the men who are to go into training, and to decide whether they are fit to undertake such work. I would, therefore, suggest that all educational authorities in connection with this Association be requested, with the least possible delay, to form special advisory committees consisting of employers and employed, who should have the controlling of these courses. The existing facilities at these technical institutes should also be readily placed at the service of such committees, and every assistance given to carry out what is decided upon as the best policy to adopt for the training of our disabled heroes.

The broad policy outlined by Major Mitchell seems to have anticipated a modification of the existing standards of technical education. It is one thing to give young people a thorough trade-training lasting two or three years, and quite another to train handicapped adults in a few weeks, or months, to become wage-earners capable of supporting a family. Under the exigencies of the situation, the requirements usually insisted upon by technical schools aiming at thorough knowledge of a trade must suffer some diminution. Skill in a process, rather than knowledge of a trade, must be the object aimed at.

Major Mitchell spoke not only as the director of one of the leading technical institutes, but as one who had had nearly a year's experience in training limbless soldiers and sailors in two of the leading military hospitals. When it was

decided to establish curative workshops in the hospitals at Roehampton and Brighton, to which men who have lost limbs are sent to be treated and fitted with artificial limbs, Major Mitchell was chosen to direct the courses. The results already achieved with men before they were discharged from military service equipped with artificial limbs gave weight to his opinion as to what course should be pursued with men who had passed under the civil control of the Statutory Committee. At that time 3,630 limbless men had passed through the hospital at Roehampton. Of this number, 882 had availed themselves of the opportunity of training in the workshops; 818 had been placed by the employment bureau; 1,309 had returned to their former occupations; 1,016 had been passed on to local committees for employment; 487 had not been dealt with for employment, including colonials, those unfit for work, those discharged for misconduct, or those who refused all offers of assistance.²

At this time, those in charge of the vocational work in the hospitals were at a disadvantage in urging the men to accept training inasmuch as the basis upon which pensions were granted was such that if a man's earning capacity were stimulated through training, it operated to reduce the amount of his pension. This hardship was removed by the Royal Warrant of 1917 which provides that a man's pension shall be assessed upon the basis of the degree of his physical disability, and not upon decreased earning capacity.

Major Mitchell stated that the object of his paper was to emphasize the immediate importance of enlisting the services of a large number of technical institutions throughout the land which were admirably fitted to afford the disabled men just the kind of training that would meet the requirements of the localities in which the institutions were situated. He stated that there were at least 150 technical schools that could be utilized for training purposes.

A unanimous resolution was passed that the Association should do all in its power to place the resources of the technical institutes at the disposal of the Statutory Committee.³ Accordingly,

¹ Major Robert Mitchell, *What Can Be Done To Train Disabled Sailors and Soldiers in Technical Institutions*. Bolton, 1916.

² *Ibid.*, p. 16.

³ *The Daily Mail*, London, October 23, 1916.

the following questions were sent out to the various schools:

- A. How far in your institution are you able to train men for local institutions?
- B. Will you name these industries?
- C. State how many men you could accommodate.
- D. In what other direction not herein indicated can you assist?

In the London district a number of institutions were already engaged in this work. More than fifty men with limb amputations, who had taken training in the workshops of the military hospital at Roehampton, had been given further instruction in electrical and mechanical engineering, lasting a month or six weeks, at the Regent Street Polytechnic and had been placed without difficulty. The Battersea Polytechnic had trained some forty men in motor mechanics and driving. A course in electrical switch-board operating had been started at the Northampton Polytechnic Institute, and the Cordwainers' Technical Institute was beginning to train men in shoemaking and leather work.

The practical results of these technical schools in training disabled soldiers and sailors prepared the way for a wider movement which took place following the action of the Association of Technical Institutes.

While the local pensions committees were well qualified to look after the needs of a man's family, their scope was not wide enough to make the best provision for his vocational training. The educational facilities of a wider area than that covered by the local committees must be syndicated if men of differing disabilities and previous industrial experiences were to be given the variety of training the circumstances might demand. Accordingly, in the spring of 1916, Joint Advisory Committees, made up of representatives of the various local pension committees and education authorities, were formed to arrange comprehensive schemes for utilizing the facilities for technical education within whole counties or groups of counties. There were twenty-two such joint committees appointed in England and Wales, Scotland, and Ireland.

In a country like the United States, where technical education is in its infancy, one hundred and fifty technical schools seem like a large

number. As early as 1837 Parliament recognized the need of schools of design to improve the fabrics of its manufacturers and voted to establish schools of design. But these were not very successful, and most of the textiles continued to be patterned after French designs.

The first World's Fair, held in London in 1851, bore in upon the consciousness of the English manufacturers the need of training such artisans as the exhibits of France plainly showed that she possessed. International competition touched the English pride very deeply. Belgium felt the same need for trained workmen and sent to England Chevalier de Cocquiel to make a study of its industries. In his interesting report to the Belgian Government in 1853 this nobleman credited England's success as an industrial nation to her commercial skill, rather than to her technical ability which he considered decidedly inferior to that of the French.⁴

Stirred to activity by the achievements of its commercial rival across the channel, England entered upon a period of development in trade-training which has resulted in the many technical schools in all parts of the United Kingdom. In 1889 Parliament passed the Technical Instruction Act⁵ which authorized local authorities to levy a rate not to exceed one penny in the pound for the purpose of promoting technical instruction in their districts. In 1913 there were 113 institutions in England and Wales in which technical day classes were recognized and aided by the Board of Education.⁶ The number of pupils over eighteen years of age in these schools was 3,461. To these day classes must be added a very large number of night classes. The amount paid by local authorities in aid of these day and night classes amounts to more than eight million dollars annually.⁷

The task of alining these facilities for technical education with the purposes of the government to afford the disabled soldier and sailor every opportunity to secure an adequate trade

⁴ Chevalier de Cocquiel, *Industrial Instruction in England*, being a Report made to the Belgian Government.

⁵ 52 and 53 Vict., c. 74.

⁶ Great Britain, *Statistical Abstract for the United Kingdom*, 1900-1914.

⁷ Great Britain, *Statistics of Public Education in England and Wales*, Part II, *Financial Statistics*, 1910-1911-1912.

training within his own district was laid upon the Joint Advisory Committees. The schemes of some of these joint committees have been published and are interesting as affording an idea of the scope of vocational education offered in such highly industrial counties as Lancashire and Yorkshire.

THE LANCASHIRE SCHEME⁸

Lancashire is the most populous of the English counties, but its area is not much greater than Long Island. Before the development of railway transportation factories driven by steam grew up near the coal fields. Lancashire, with its coal mines, experienced a wonderful industrial development and contains many of the manufacturing centers of England. Quite naturally, many technical and trade schools were established to train skilled artisans.

Early in 1917 the representatives of the local war pensions committees, local education authorities, branches of the Red Cross Society, and Lord Roberts' Memorial Workshops met to formulate a scheme for the coordination of all plans for the care, training, and employment of disabled sailors and soldiers within the geographical county. They expressed the opinion that the government should provide, out of imperial funds, the cost of such training, a principle which was adopted by the Ministry of Pensions and set forth in the Royal Warrant of 1917. Every borough and urban district with a population of over 20,000 had its local war pensions committee, forty-two in all.

A canvass of the institutions under the control of local education authorities, universities, and special trusts capable of giving training to disabled men revealed a surprising number of facilities that could be utilized. The list of facilities with the number of centers in which instruction might be given is as follows:

A. Agriculture and horticulture, 4.

B. Engineering trades:

1. Workshop processes generally, 13.
2. Motor mechanics, 5.
3. Engineers in charge (hotels, etc.), 6.

4. Draughting, 13.
5. Electrical work, 9.
6. Storekeepers, timekeepers, etc., 1.

C. Building and allied trades:

1. General building, 9.
2. Woodworking trades, 20.
3. Plumbing, 16.
4. Painting and decorating, 21.
5. Brickwork and masonry, 4.
6. Plastering, 7.

D. Coal mining, 7.

E. Textile occupations:

1. Cotton spinning processes, 10.
2. Cotton weaving processes, 19.
3. Woolen and worsted processes, 1.
4. Subsidiary processes, 7.

F. Boot and shoe manufacture, 2.

G. Nautical occupations, 4.

H. Printing and allied trades, 4.

I. Commercial and clerical occupations, 35.

J. Art and art industries, 20.

K. Miscellaneous:

1. Gas-fitting, 3.
2. Instrument-making, 3.
3. Basket-making, brush-making, toy-making, 9.
4. Boot-repairing, 3.
5. Tailoring, 6.
6. Hairdressing, 2.
7. Cooking, domestic service, etc., 10.
8. Flour-milling, 1.
9. Telegraph and telephone operating, 3.
10. Chemical laboratory work, 14.
11. Local inspectors, 5.
12. Library attendants, 3.
13. Shop assistants, 1.
14. Cinema operators, 1.

In all, facilities were offered in some forty-four centers. It is not to be thought that all of the facilities offered by this ambitious scheme have been utilized. Correspondence with a number of these schools has elicited the fact that there had not been sent any men for training as late as last September. One of the reasons given was that the demand for labor was so great that many disabled men could find ready employment without training, a condition that will not obtain after the war and the disbanding of the army. The principal of the Municipal Technical

⁸ Great Britain. Report upon Proposed Cooperation between War Pensions Committees, Education Authorities, and Other Bodies in Lancashire. Preston, May 14, 1917.

School at Rochdale, in a textile district, writes: "Firms are willing to employ such (disabled) men and prefer to teach them in their own establishments. The advantage to the man is that he begins wage earning very soon. The advantage to the firm is that as the training has probably only given the man a knowledge of one of their own processes, he will not be qualified for work elsewhere. No grievance, however, has yet arisen through any firm endeavoring to make any unfair use of this advantage." It may be questioned whether this fact is not an indictment against the system of factory training and a potent argument in favor of the broader training of a technical school which after-war conditions will enforce.

The Municipal Technical School at Blackburn has not found it necessary to start any special classes for disabled men, but has admitted a few to the regular classes in shorthand and type-writing. The principal writes that "the soldiers who suffer from considerable disablements have apparently not yet arrived in the town from the various government schools such as at Roehampton." The school is not equipped to give workshop practice such as most of the men seem to require. Other schools write that so far the number of disabled men has been negligible and they are cared for in the regular classes. The feeling seems to be that the numbers will increase as time goes on and the men come to realize the advantages of such training and that the increase in earning capacity will not affect their pensions disadvantageously.

The Municipal Technical School at Manchester is confronted with the difficulty of carrying on its regular work with a depleted staff and also providing special classes for disabled men. The principal writes that in some trades it is desirable, if not necessary, that a man receiving training should have been engaged in that trade in some capacity before enlistment in order to meet the objections of the trades unions. His opinion is that the most promising trades are such electrical occupations as substation attendants, cinema operators, and handy men in hotels, printing, carpentering, and cabinet work.

Training in agriculture at the County Council Farm at Hutton proved to be so attractive that

applications were received from twice as many candidates as could be accommodated.

The Lancashire and Westmoreland Advisory Committee writes that classes in the following subjects have been arranged with the following enrolment:

Motor mechanics and driving	21
Agricultural subjects	32
Clerical occupations	25
Cinema operators	10
Boot and shoe-repairing	15

Sir Harcourt E. Claire, the honorary secretary of the Committee writes: "At the present time there is not much demand for training because industry generally is good and most of the partially disabled men go back to their former employment or other occupations in which there is a demand for labour."

THE YORKSHIRE SCHEME ⁹

The scheme of the Education Advisory Committee on Training Disabled Men in the County of Yorkshire is not less pretentious than that of Lancashire. The schedule of training facilities presented in March, 1917, covers quite the same trades as that of the adjoining county. They are arranged in the following group with the number of centers in which they are taught:

1. Engineering trades, 8.
2. Electrical trades, 6.
3. Textile industries, 8.
4. Chemical industries, 8.
5. Leather industries, 4.
6. Building and allied trades, 10.
7. Printing and allied trades, 7.
8. Furniture trades, 3.
9. Clothing trades, 3.
10. Art industries, 14.
11. Commercial and clerical occupations, 10.
12. Local inspectors, 3.
13. Coal mining, 3.
14. Agriculture and horticulture, 2.
15. Nautical occupations, 1.
16. Miscellaneous occupations, 4.

In all, training is available in seventeen centers. Correspondence with several schools showed that at that time little training had

⁹ Great Britain. Report of Education Advisory Committee on Training Disabled Men in the County of Yorkshire, Leeds, June 26, 1917.

actually been done and that was usually in the regular classes of the institutions.

IN THE LONDON DISTRICT

It is quite natural that the technical schools in London should have a large share in the training of disabled men. Mention has been made of the beginnings of work in four of the London institutes which should receive further attention.

In the summer of 1915 the Institution of Electrical Engineers, in cooperation with the Education Committee of the London County Council, appointed a joint committee to make arrangements for classes at the Northampton Polytechnic Institute to train disabled men as electrical sub-station attendants.¹⁰ The Committee had difficulty at first in obtaining candidates for training because of the prevalent fear among convalescent men that any attempt to improve their earning capacity would reduce the amount of their pensions. "The Committee has been assured," the report reads, "that this fear is unfounded, but until public assurances to the contrary are made by the proper authority and widely disseminated, this difficulty will have a paralyzing effect on all attempts similar to that of the Committee to help disabled sailors and soldiers by effectively increasing their earning capacity." That public assurance was given by the Royal Warrant of 1917.

A further difficulty experienced by the Committee at that time was the absence of any government grant for maintenance during training. A voluntary body, known as the Disabled Soldiers' Aid Committee, provided the necessary maintenance money for board and lodging. A sub-committee examined the candidates for training. Men suffering from a nervous breakdown, or who had lost more than one limb, were rejected. The Committee was encouraged in its work to find that men free from these particular disabilities had been allowed to accept positions with power companies with no increase of premiums for Employers' Liability. This policy has been extended by the insurance com-

panies to cover the employment of disabled soldiers and sailors in other industries.

The minimum period of training was put at four weeks and the number of students trained at one time was twenty. The course of training consisted of (a) workshop practice in wiring work and the use of simple tools; (b) powerhouse demonstrations, to familiarize the students with switching gear and running machinery; (c) electrical and physical laboratory work; (d) class demonstrations in the elements of electrical engineering and of simple engineering physics; (e) the writing of reports upon the demonstrations and on the laboratory work; (f) oral examinations at the end of the course.

The Committee also undertook to find positions for the trained men with the result that the number of applications from employers exceeds the number of available candidates for positions. The Institute is now prepared to train about 160 men per annum for this electrical sub-station work.

In the fall of 1915 the Battersea Polytechnic arranged a comprehensive scheme for the instruction of disabled soldiers and sailors in the following courses:¹¹

1. Chemical trades and industries; a course of six weeks to three months to qualify men to be laboratory assistants; two men took the course the first session.

2. Mechanical engineering; courses in training in fitting and turning, and in pattern-making were opened to men previously in the trade, with one trained in the latter; the courses in motor mechanics, lasting three months, proved very popular, one hundred taking motor mechanics and driving, six taking motor car and agricultural tractor mechanics and driving, six agricultural tractor mechanics and driving, in the first session.

3. Electrical engineering: courses for switchboard attendants, two months; for engineers in charge of small electrical plants, three months; a course in electrical testing, two months, was taken by fifteen men; a course in wiring, two months.

4. Special courses in sanitary inspection, music, art, and cookery for which there seem to have been no candidates.

In regard to the physical qualifications for the popular courses in motor mechanics the principal writes: "The men must have the full use of both

¹⁰ The Institution of Electrical Engineers. Courses at the Northampton Polytechnic Institute, London, E. C., for Training Disabled Sailors and Soldiers as Electrical Sub-Station Attendants, London, November 3, 1916.

¹¹ Battersea Polytechnic. Report on the Training of Disabled Soldiers and Sailors, London, July, 1917.

hands and arms, but the loss of a leg below the knee is no great handicap in motor driving, and we are prepared to take suitable men who have lost a leg above the knee if they wish to be motor mechanics or garage attendants. We do not, however, object to the loss of an eye, provided the remaining eye is normal. Any man suffering from serious heart trouble is not taken if he wishes to be a driver, but only if he desires to become a motor mechanic or garage attendant. The men have had practically no trouble in obtaining posts."

Men suffering from shell-shock and nervous trouble have been successfully trained in electrical testing and switchboard work. Men are taken who have the partial use of an arm or hand, but one-armed men are barred. They prefer not to take men who have lost a leg, but it is not absolutely disqualifying. No difficulty has been experienced in finding good positions for the men. In general the disabled men attend classes specially arranged to meet their needs.

OTHER SCHOOLS

There are several schools not already mentioned whose work for disabled men should be noticed.

The Birmingham Technical School had few trainees when they undertook this work towards the end of 1916, but the numbers have been increasing at an embarrassing rate. They have two courses of training: (1) In the engineering workshops for munition factories—a type of training that will be mentioned later; and (2) in the electrical department. Candidates for training as munition workers are usually tried out in evening classes to see if they are capable of doing the work before admitting them to the regular training department for munition workers as the Ministry of Munitions will not maintain a man for such work unless he can be made reasonably fit for war work in a short time. In August, they had sixty students in the engineering workshops. In the electrical department they had fifteen men in training as electrical machine attendants, switch-board operators, electric jointers, etc. Most of the students enter a full-time day course of about six weeks, but

in some cases, owing to the crowded condition of these courses, they are first tried out in evening classes.

The principal writes: "It is necessary in connection with each approved course to establish some form of Trade Advisory Committee to properly select disabled men for the course to ensure a steady supply of students to the school, and to take a leading part in placing men in posts after the course has been completed. It is not the function of a technical school to act as an employment agency, such work needs an expert knowledge of the trade, which knowledge is only possessed by men in immediate contact with practice."

The state of training in South Wales may be judged from a letter from the principal of the Newport Technical Institute which has arranged courses in drawing office practice, light woodwork, jewelry, and commercial subjects. He writes: "The men have been unwilling to come forward, but now that the pension matter is being put on a firm basis, I think that the numbers will be greater. For your guidance, however, I might say that in the whole of South Wales we have only had some twenty applications for training up to the present (September, 1917), but as you will realize, this number will be greatly increased with the return of the real civilian population. The men who have returned and been discharged up to the present will no doubt have been drawn from the old army. . . . The form of training essential in these cases is not particularly educational in the strict sense but tends to be intensive, as it is essential that the discharged men should become self-supporting as quickly as possible, and the ordinary ideals of education do not apply in these cases."

FINANCIAL ARRANGEMENTS

The joint committees of both Yorkshire and Lancashire took the ground in their recommendations that the Ministry of Pensions should pay the cost of training disabled soldiers and sailors in technical schools. The former committee recommended "that the Pensions Ministry should bear the cost of training disabled men by making adequate grants on the basis of a flat

rate for all localities, varying with the nature of the instruction given."

The Lancashire committee passed the following resolution: "That it be represented to the Ministry of Pensions that it is most essential that Education Authorities should be at once assured that, if the maximum rate that may be fixed should be shown to be insufficient to meet the increased actual expenditure incurred, the balance shall be paid by the Ministry of Pensions on the recommendation of the Advisory Committee." Any uncertainty on this score was dispelled by a letter from the Ministry of Pensions which enclosed a copy of the new Instructions for Treatment and Training which dealt with this question. The letter read: "From Schedule 3 of these Instructions it will be seen that a rate of 7s. 6d. per head per week has been fixed as the amount which should normally be regarded as adequate to cover the training given, but in any event the cost should not exceed the additional expenditure incurred, exclusive of all standing charges in respect of the Institution. In exceptional circumstances the amount of 7s. 6d. per head per week may be exceeded with the sanction of the Minister, but it will be necessary in any case to show that the charge made, whatever it is, does not more than cover the additional expenditure incurred."

The cost to the Ministry of Pensions for training a disabled soldier or sailor in a technical school is, therefore, the fees of the school which are not ordinarily to exceed 7s. 6d. per week, although it is evident that in some cases as high as 10s. are sometimes paid; to this must be added the difference between the man's regular pension and his total disability pension of 27s. 6d. per week, plus a pension to his wife during the period of his absence from home and a bonus of 5s. a week during training. For example, should a man be awarded a permanent pension for fifty per cent. disability it would amount to one-half his total disability pension, or 13s. 9d., besides certain allowances to any children he might have under the age of sixteen. During his period of training he would get his full disability pension of 27s. 6d., and a bonus of 5s. a week, his wife would get her 'widow's pension' of 13s. 9d., and fees amounting ordinarily to 7s. 6d. would be

paid to the institution training him. Out of this gross sum of 40s. per week in excess of his regular 'minimum pension' the state would deduct 7s. per week for the man's maintenance. This amount might be further increased by the scheme for 'alternative pensions' if the man previous to his enlistment had been receiving a wage in excess of this gross amount plus any children's allowances.

TRAINING OF MUNITIONS WORKERS

The government found it necessary to provide for the training of a large number of skilled workers in munition factories. By an arrangement with the Minister of Munitions a considerable number of technical schools undertook the training of men and women for this work. Where disabled men gave promise of training as readily as normal men, they were received as candidates for training.

The Technical Institute of Loughborough writes that crippled soldiers are examined upon entry and placed in training in the particular kind of work for which they are physically and mentally fit. No special classes are arranged for them and they are instructed at the side of each machine or bench. Instruction is given in shell-turning, capstan tool-setting, fitting, aero-engine testing, gauge-making, foundry work, smith's work, oxy-acetylene welding, and pattern-making. Each candidate must agree to the following conditions:

1. I agree to attend for training in any factory, institution, or training center which may be named by the Ministry of Munitions, for a period to be determined by the Ministry of Munitions.
2. I agree to accept payment, while undergoing training, of maintenance allowance at a rate not exceeding 9d. per hour.
3. I agree to abide by any decision of the Ministry with regard to the termination of my training on account of unsatisfactory behaviour or incapacity.
4. I agree, on being released from my course of training, to accept employment where and when directed by the Ministry of Munitions, in consideration of my free training and maintenance allowance.

The principal of the Loughborough Technical Institute writes that the demand for labor has been such that they have had no difficulty in placing all the men trained in munition factories.

The Aston Technical School has been engaged in similar work. They made no special effort to secure disabled men, but in one way and another seventy-four wounded soldiers and eighty discharged through disease had come to them for training. They had placed twenty-four wounded soldiers as follows: Gaugemakers, 6; tool-setters, 6; tool-turners, 2; tool-hardener, 1; viewers, 4; moulders, 2; millers, 2; core-maker, 1. Of the discharged soldiers, thirty-six had been placed as follows: Shell-turner, 1; moulders, 3; core-makers, 3; tool-setters, 4; tool-maker, 1; tool-turners, 7; fitters, 3; viewers, 5; capstan operators, 2; gaugemakers, 3; aero-erector, 1; aero-assembler, 1; sheet-metal worker, 1; press worker, 1; moulder, 1.

The length of the course varies from one to six weeks for viewing, and from three to four months for gauge-making. Tool-turners, tool-setters, moulders, millers, and grinders can usually be trained in from four to five weeks. No distinction is made between discharged soldiers and ordinary trainees. Both receive the same maintenance allowance of £2 per week, for a fifty-hour training week.

No difficulty has been experienced in placing trained men with munition firms. The principal writes: "As a rule, the men who are intelligent and industrious do exceedingly well, and I have in my possession testimonials from various firms expressing satisfaction and appreciation of the work the trained men are doing for them. It is quite possible that the less-skilled men may be thrown out of work when the war is over, but the more highly skilled men will retain their places."

TRADE ADVISORY COMMITTEES

The appointment of Trade Advisory Committees was the result of cooperation between the Ministries of Labour and Pensions. The functions of a committee for any particular trade are:

1. To advise as to all questions that affect the reinsertion into employment of disabled men formerly employed in the trade.

2. To make inquiries and to advise with regard to the possibility of the permanent employment of disabled men not hitherto working in the trade.

3. To report upon any schemes of training, either in technical institutes or in factories, that may be necessary for disabled men, whether formerly employed in the trade or not, and to give advice as to suitable centers throughout the country in which such training might be given.

4. To advise upon any general questions with regard to the rate of wages to be paid to disabled men in the trade.

The reports of committees in five trades have been published, *viz.*, attendants at electricity sub-stations, employment in picture theaters, tailoring, agricultural motor-tractor work in England and Wales, and the furniture trade. In each of these trades the courses offered in various technical schools are commended, the prospects for permanent work surveyed, the general scale of wages discussed, and the type of disabilities which would not bar a man mentioned.

The committee on the furniture trade, composed of eight representatives of employers' associations and eight representatives of trades people, has analyzed the trade into thirteen processes and has suggested the adaptability of each for different types of disabled men. It has also established regulations regarding the nature of the training and the scale of wages to be paid. It stipulates that the course of training in any process shall be divided into a probationary period and an improvers' period. In all processes, with the exception of the glass processes, the probationary period is to be spent in a technical school, under a scheme approved by the Ministry of Pensions, wherever, in the opinion of the Local War Pension Committee, the man can conveniently attend such a course. The improvers' period shall be always spent in a factory or workshop. This attitude towards training in technical schools, during at least a part of the course, seems to represent very fairly the attitude of both employers and work people towards the value of the technical schools of the country in the re-education of the disabled soldier and sailor. Training in workshops and factories is sanctioned in some cases, but no fees are ordinarily to be paid for the training, and the employer is expected to pay to the state such wages during training as may represent the net value to him of the man's work. The advantages of instruction in a technical institution are deemed

to be such that the state is willing to pay a fee for the instruction.

SUMMARY

The development of technical education in England under the encouragement of the government, and by grants made by local authorities, has resulted in a large number of technical schools with facilities for instruction in every industry of the country.

These institutions are looked upon both by employers and work people as affording the best facilities for the re-education of the disabled soldier and sailor.

The state undertakes to pay such fees for the training of disabled men as represent the 'out of pocket' expenses of an institution for providing special classes for these men.

The task laid upon the technical schools by the state is by them recognized as involving certain modifications in their educational ideals. Short,

intensive courses are needed to fit adults in a brief period to become wage-earners. Hence, many things thought necessary to give young persons a thorough trade training must be omitted.

The facilities for technical instruction in a given district have been surveyed and pooled under the direction of joint committees, so that a variety of trades may be taught to men with different disabilities and previous industrial experiences.

The danger of training too many disabled men for a particular trade is guarded against by the appointment by the Ministry of Labour of Trade Advisory Committees who also pass upon the kind of instruction desirable, the prospects of permanent employment, and the scale of wages paid in a particular trade. In this way co-ordination is secured in the use of the best facilities the country affords for training its disabled soldiers and sailors at the expense of the state.

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**Publications of the
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**Placement Technique in the Employment Work
of the Red Cross Institute for Crippled
and Disabled Men**

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Placement Technique in the Employment Work of the Red Cross Institute for Crippled and Disabled Men

The war has brought to our attention a new problem—the finding of employment for our crippled soldiers and sailors. There is no class of people who need guidance into the right kind of work as much as cripples. At present employment workers have organized their work, so that they can give much useful vocational information to boys and girls, but so far there has been little effort to gather together the facts about cripples which would be useful in placing them. In order to meet this need in New York City, and to be a center for information about industrial opportunities for cripples in the United States, the Red Cross Institute for Crippled and Disabled Men started an employment bureau in December, 1917. This bureau finds positions for industrial as well as war cripples.

Eventually we are all looking to the public employment bureau, run either by the federal or state authorities, as the primary solution of the employment problem. Unfortunately, however, the technique of these bureaus in this country is developing so slowly, that it is necessary for private organizations to work out the special problem—such as that of the cripple—and then after the method has been fully developed to urge the public bureaus to take over the work of the specialized bureaus. To place a cripple involves a tremendous amount of individual attention to each case. Clerks in public employment offices, who are attending to hundreds of cases in a week, can accomplish little for a cripple. Crippled men have been going around without success from one bureau to another and finally in discouragement they have taken, as a last resource, to some form of begging. Surely there can be no greater waste than that men who might be

good, industrious workers if they knew into what niche of industry they could fit, should be without employment because there is no one to guide them into employment suited to them. You ask a cripple, 'What kind of work do you want to do?' His habitual answer is 'watchman'. We all know that there are few watchman's positions and many of these are unsuitable for cripples. The purpose of this bureau is to be able to answer this question in such a variety of ways, that each man may find for himself some work that is congenial and constructive.

In October, 1916, a small bureau for cripples was started at Hudson Guild by the Federation of Associations for Cripples. The Red Cross Institute has taken over the work of this bureau and has used the past experience in formulating its plans. Meantime the bureau had secured about 150 positions. Its experience was at times very discouraging, because so few of the placements were at all constructive. It is impossible for a bureau as small as that of the Federation while at Hudson Guild, to be really effective. It indicated, however, clearly the need for work of this kind, if organized in a careful, scientific manner.

There were a number of important facts that the year's experiment pointed out. An employment bureau for cripples has two functions—employment work and investigation of industry. It would be uneconomical to run a bureau at such a large overhead expense were it not utilizing to the greatest degree all its facilities. With proper organization it is possible to gather many industrial facts at the same time as one is interviewing employers and employees. These facts when collated are more valuable than that

of any academic survey, since through employment experience one is able to check results. To have such information right at hand while one is doing placement work is invaluable. For instance, there comes in a one-armed man who is a shoemaker. Our file shows us at once that experienced men with but one arm can be used in this industry sorting leather, at coloring the heels and edges of shoes, at dressing leather on finished shoes, at pasting the edges of shoe uppers and at cutting. The man is amazed that such opportunities exist for him. How successful we will be in placing him after we have discovered his niche is purely a matter of employment efficiency.

A second fact the experiment pointed out is the need for individual work with the applicants. Each man must be thoughtfully studied as a relief worker does in case work. The man must not think he is being made a 'case' for he will resent being treated as though he came for charity when he comes for employment. For this reason it is absolutely essential that the employment bureau should not do relief work. Our experience has indicated that without the investigational facilities of the organized charitable societies, that we are apt to make all the usual mistakes. We gave to those who did not need it, and often those who were deserving were not helped. We are in the closest and most friendly cooperation with the organized charities of the city and find that they are willing to give relief where we suggest it. In the public bureaus the positions open each day are posted on a bulletin board and the applicants scramble up to the desk if they are interested in the opportunity open. Such a method is of course useless in dealing with cripples. Each problem is so unique that it must be studied individually from every viewpoint that gives light on the industrial usefulness of the man.

It is absolutely essential that the employment worker differentiate between the placeable and the unplaceable. We found in starting the bureau that we spent so much time on one or two men that many others were neglected. Unfortunately, there are always a number of men who cannot be placed. The problem is not to spend endless time in sending them to jobs

for which they are unsuitable, but rather to find out the proper relief workshop where they can obtain employment, or to refer them to the charitable organizations which will provide homes for them. The placement workers should be able to judge whether the applicant is suitable for employment or not. In this way, the handicapped employment bureau can really be a work test.

Fourth, the experiment pointed out that a handicapped employment bureau cannot be successful unless it is organized according to the most modern and efficient business methods. It is more important that the technique of this kind of bureau be perfect than that of the usual bureau, because the type of applicants we have are naturally not as desirable as those at the ordinary bureau and unless our service is more efficient we cannot expect employers to ever give us a second trial. It is only by having the most efficient office routine, that we can allow all the energies of the placement workers to be given to the really big job—that of vocational guidance.

Probably the most important lesson which has been taught us by the experience of the Federation bureau while at Hudson Guild was the necessity that the crippled worker be trained if he is to make a livelihood. It is difficult to place a skilled cripple but it is much more difficult to place a cripple who has no particular industrial equipment. No employment bureau for cripples can be efficient unless it is closely tied up with continuation, trade, and evening classes for the handicapped. There is no solution to this problem in placing unskilled men as watchmen, doormen, and elevator operators. Unless we can make cripples skilled we cannot make them self-supporting. It is natural that if an employer has two unskilled workers—one crippled and one not—when the dull season comes he will naturally discharge the handicapped man. With the skilled cripple the proposition of course, is utterly different. Some men can be placed immediately at work where they will learn a trade, but in most cases it is essential that the cripple receive preliminary training before entering industry, if he is to become in the future a self-supporting citizen.

Surname		First name		Address		Flight Phone		Classification	
								Date	
Work desired								Min. wage	
Work impossible									
No. hours	Crutches 1	Crutches 2	Brace	Art. leg	Work arm	Dress arm	Work objected to		
can stand							Cane.		
Orthopedic handicap							Blt. shoe		
(Note left, right)			How crippled?				When?	Special interests	
								Compensation Damages	
Height	Weight	Hearing	Sight	Sp. Tb. Card	Other physical defects				
Hospitals interested and dates									
Regiment	Company	Rank	Length of Service	Date discharge	Pension	Further education desired			
Age	Date of birth	Birthplace	Parents' birthplace	Yrs. in U. S.	Al.	Clt	Colored	Cath.	Jew. Prot. Languages spoken
Single	Wid.	Div.	Wife's name	Father's	Mother's	Brother's	Sister's	Children's names	
								Nearest friend	
Least elem. school	Address	Grade	Age at leaving	No. Years' schooling					
Letter Imp.	Unus.	Amb.	Br.	Nt.	capa.	pl.	dr.	rgt.	shft.
Clerical									ab. at.
Handwriting	Letter	Arith.	Spell.	Geog.	Telephone				
Org. interested	S. S. E.	No. record.	C. O. S.	A. I. C. P.	General				
					J. A. B.				
U. H. C.	B. B. C.	A. A. C. C.							
Signature									
Referred by									
Registered by									
Employees' Application. Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue									

Name		Address		Business	
Name of Worker		Address		Date	
Age	Dates Employed: Began		Left		
Kind of work			Seated Standing	First wage Final wage	wk. wk.
Worker's handicap: Leg			Arm	Other	
Accident { Before employment here { During employment here { After employment here			Was worker taught trade here after he was handicapped?		
Were any adaptations made to suit work for handicapped man?					
What work do you think cripples could do in this factory?					
Remarks					
Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue. Employee's report on work place.					

Name		Address		Floor Phone		Business	
Number males employed?		Females		Total		Learners taken?	
Would they advise classes for cripples?		For what kinds of work?		Total		Apprenticeship system?	
Would they cooperate with such a class?		Would they instruct in own factory?		Length of class?			
Employer's suggestions on classes							
Is the work seasonal?		Busy season		Homework		Piece work Week work	
Is there a demand for employees?				Unskilled			
Remarks							
KINDS OF WORK		Wage Min. Max.		One- Armed		Lame	
Learners						Leg Amputa- tion	
						Crutches	
						Seated	
						Stand- ing	
						Hours	
						Begin	
						End	
						No. hours daily	
						No. hours weekly	
						Predominant	
						Any refused	
						Workplace	
						Lighting	
						Ventilation	
						Space	
						Cleanliness	
						Noise	
						Seats provided	
						Toilets	
						Elevator	
						Stairs	
						Fire protection	
						Building old or modern	
						Union	
						Yes	
						No	
						Labor laws	
						Source of information	
Persons hiring help		Date		Visitor			
Red Cross Institute, 311 Fourth Avenue. Employers' record							

The methods of running an employment bureau of this kind must be flexible. Every day there must be adaptations as new ideas develop.

The most important factor in effective employment work for cripples is a full and intelligent registration of the applicant. This registration should be done by the placement worker, not by an untrained clerk, because a great deal of vocational advice can be given during the interview. It is by means of the information the placement secretary secures in this way, that she becomes equipped to give real advice. One cannot read up on the subject because there has been so little written about it. The placement worker must learn her business largely from what is told her by the applicants for work. It is often difficult to make the applicant understand why we ask so many questions. We explain that we are learning from him. It is interesting to see how the applicant's attitude changes after we explain the reasons for our questioning. Of course, another reason for this inquisitiveness on our part is the necessity for us to know more of the industrial and social background of the man than is essential in ordinary employment work.

In registering an applicant, the order in which the questions are asked is important psychologically. The first question should always be 'What kind of work do you want' because this is the most important object of his visit. This blank must be filled out in the greatest detail. Every possible line of work the applicant is suited for must be listed. Frequently there is no job open at the time of the first interview, and unless one knows definitely just what lines the man is interested in or is willing to go into, it is difficult to communicate with him about possible openings that come up in the future. An amateur at placement work frequently fills out the question 'work desired' by the comprehensive word 'anything'. Such a registration is of course valueless. It is essential also that the line 'work impossible' be carefully filled out; the doctors should advise occupations that should be avoided, and should suggest how many hours of standing the applicant can bear. The applicant should be urged to tell about any special interests he may have. Frequently

a man may have some artistic or manual bent which he does not speak about unless he is questioned, but which may be a help to us to place him in the work that is most congenial to him. For instance, a one-armed man, who has been working as a messenger for the last year has been studying sign painting evenings. If possible, we will try to place him with a sign painter.

The next part of the card is devoted to a description of the handicap and a report from the hospital. In many cases it is difficult to get a report from the doctor, but this is really essential to any intelligent placement of cripples. The applicant usually does not understand his own condition. He does not know what work will be a strain. He is too often looking for an easy berth just because he is handicapped when, if the doctor's advice is secured, we find that he can do heavier manual work than he thinks himself capable of.

The family background takes up the next section of the card. We sent in the names of most cases to the Social Service Exchange, an organization which keeps on file the names of all persons who are known to any of the relief organizations of the city. This is not a betrayal of confidence because we register the name only. No information is given to the Exchange besides this. The Exchange informs us if any other organization has known the man. Frequently we can get a valuable family background of a family from the Charity Organization Society. There is no need of our repeating the mistakes of others if we can learn from their experience.

All applicants for clerical work are given a simple clerical test. This has proved very valuable. A man whose handwriting is unintelligible and who cannot figure has applied for a bookkeeper's job. It is important to try to avoid mistakes by testing applicants as much as possible. There should be developed tests for ascertaining the physical and manual capacities of the men we send out, but so far we have done little in this respect.

The last part of the card—the work history—is extremely important. One must have the greatest detail as to the work a man has done in order to guide him into the right position. It

must always be remembered that the essential of any effective placement work is the securing of congenial work. The man must like his job or he will not stay long. The placement workers must not try to force positions on an applicant, but by an intelligent reading of his work history, should try to get him into the place for which he is best suited. It is very advisable to look up the references of all applicants, as the more we know of their equipment, the better we can place them.

After we have analyzed the work for which we think the applicant suitable, our task is to get him a job. This is a very difficult task at present because the employer does not like to take on a crippled man on account of the Workmen's Compensation Law. The law will have to be changed in some way if we want to get any number of handicapped men back into mechanical jobs. A great many employers do not like to see cripples around and we must fight this prejudice every time we speak to an employer about our men.

One method of securing employment for these crippled men is by publicity. We find that we must educate the public to the fact that there are many jobs a cripple can do. Many employers think that a cripple must be a beggar. Many more have never thought about the problem at all. Until we can get public opinion more friendly towards the employment of cripples, our placement cannot be extensive. This does not seem an impossible job, however. When we have the facts to offer, we believe we can do a great deal to change public opinion about this matter.

The other means we have of securing jobs are very similar to those used by the better non-commercial bureaus of this city. We answer advertisements in the paper, and try to get a certain number of employers to call on us regularly for workers. We keep our applicants in touch with all civil service openings. We visit employers who might be interested in taking skilled workers. When an applicant calls, who seems adapted for that particular kind of work, we call up the employer and try to interest him in our man. We secure most of our positions through the cooperation of the State Clearing

House for Employment Offices. All calls open at any bureau are listed at the Clearing House and these calls are transferred to any bureau which has a suitable applicant. It would be almost impossible for the Red Cross Institute Bureau to operate, were it not for the cooperation of the Clearing House.

After a cripple has been placed, we try to keep in touch with him. When necessary, his home is visited and, in some cases, the employer is interviewed after the man has been employed about a month. We have an evening hour and our most effective follow-up work is done then. The men come and tell of the difficulties in their work and frequently we can adjust them with the employer. Unless there is efficient follow-up work, the placement of cripples is of little real value.

The second large division of the work at the Institute Employment Bureau—the industrial survey—is quite as important as the placement work. A very definite plan has been decided on. The larger industries of New York City are listed and those selected for investigation which seem most suitable for cripples such as the shoe, leather goods, piano action, toys, and cigar factories. With each industry selected, we plan first to visit one factory. We next visit the manufacturers' association. We found that, unless we had been to one factory before going to the association, we were lacking in a basis for argument with the secretary. The trade union's secretary should then be interviewed and next the editor of the trade journal. If there are any industrial schools teaching this trade, their principal should be visited. It is essential to get the interest and cooperation of all these people before starting to visit the factories.

In making the factory investigation, there are a number of special questions that must be asked. Our important concern is, of course, with the number of processes cripples can perform in each factory. The employer at first thinks there is little work a cripple can do, but an intelligent investigator, in going through the factory, must study the machinery and suggest possible openings for crippled employees. The employer's attitude towards training adults for

his particular industry is important. Whether the work is seasonal and whether the workers are paid by the week or piece, are essential facts to determine in such an industrial survey. The general health conditions such as lighting, noise, and the like, are also important.

When a number of typical factories have been investigated in this way, we plan either to circularize some of the others, or else to publish letters in the trade journals. If the trade seems a suitable one for cripples, we must let the employers know of the fact. As soon as we have our facts definite, we must make effort to get in touch with every agency such as the employment bureaus and trade schools. Our informa-

tion is of little value if it stays on our files. We must use every modern method to give it publicity.

The Employment Bureau of the Red Cross Institute for Crippled and Disabled Men is in its infancy and yet its aims are already large. It wants to try to obtain for every crippled man and boy in New York City, a chance to earn an honest livelihood at congenial work. It wants, second, to gather information about industry which will make it possible in the future to place cripples in some scientific way. Society has made a mess of its treatment of cripples in the past. Let us hope that this Bureau may be of some help in giving to the cripples a fair chance.



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**The Relation of the Short, Intensive Industrial Survey
to the Problem of Soldier Re-education**

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The Red Cross Institute for Crippled and Disabled Men
311 Fourth Avenue New York City

The Relation of the Short, Intensive Industrial Survey to the Problem of Soldier Re-education

The Industrial Survey work was started by the Military Hospitals Commission on October 1, 1917, the work being commenced in Montreal. It was found that the number of courses in our schools was limited to a small range of trades and occupations, and that if the policy of continuing to train men in this limited field was followed, there would be an over-production of workers in this small range.

In order to broaden the work of our schools and embrace a large number of occupations, two ways were suggested: the first being to purchase additional equipment and give a greater range of courses in the schools, and the second—by a systematic intensive survey of industries to discover openings or possibilities, for which disabled workers could be trained, so that the new occupation would be within the limits of their disability, and place returned men in the suitable places found in the industries.

Furthermore, the feeling was quite strong that our schools, although they were doing the best they could in the short period during which they had been organized, were not in a position satisfactorily to train the men so that they could enter industry and hope for success, when working in competition with the men who not only were physically fit but also had a long industrial experience.

The Industrial Survey opened up a new field which has been followed with marked success in Montreal, Toronto, Winnipeg, and Vancouver, *viz.*, of utilizing industrial establishments as places of further training for certain occupations of our re-education cases.

It is demonstrated beyond doubt that a certain portion of the training can, with great advantage be given in the schools, for the first four or five months, enabling the returned soldier

who had a disability to accustom himself to a civilian atmosphere, methods of handling tools and doing the work. After he had reached this stage of his development, the Commission, under the direction of the Vocational Officer, was able to arrange that the disabled man, through the cooperation of employers, should enter some form of industry for which the soldier was being trained, for the completion of his re-education course.

The Survey Officers who went out to do this pioneer work, besides gathering information which was of vital importance to the District Vocational Officer in conducting the Disabled Soldiers' Training Board, were also able to do a certain amount of missionary work by taking a direct message to the employers of men, and showing them simply and clearly how they could cooperate in the reconstruction of the men who had been disabled in the battle line or through service for the Empire. This missionary work done by Survey Officers has been productive of a great deal of good, with results which may be so far-reaching that, at this time, they cannot be fully measured.

In order that the Industrial Surveyors could get a maximum amount of information in the shortest space of time, it was found necessary to make standard industrial survey sheets. It was insisted upon from the beginning that these forms should be followed by the officers making the surveys; the information from the industries called for on these forms being required as a minimum. The forms are three in number, the first being for names and information from the chief executive of the concern. It is at this point that the Survey Officer is able to get the sympathy and cooperation of the employer, and have him clearly understand the views of the

Commission in regard to cooperation in the training of disabled soldiers. The second sheet deals with the occupation and all of the elements which enter into it, such as hours, remuneration, tools, training required, related experience, most satisfactory preliminary training which a school could give, and so forth.

The third sheet known as the 'Disability Sheet' was compiled after very careful and close study of the medical records at the Military Hospitals Commission Headquarters.

The Survey Officers have been asked in the preliminary stage of their training to visit the hospitals and sanatoria and familiarize themselves with the different forms of disability so that when they enter an industry they will have a vivid picture firmly impressed upon their minds of how a disability will affect the work. With this picture before them, they go down to the shops and watch the individual workman perform his duties; therefore, the relation of disabilities to occupation is a form of motion study, not extremely elaborate but quite sufficient for the ordinary occupations.

In the evolution of the intensive industrial survey, the point was reached where some Vocational Officers considered the partial survey of more interest to them than the full survey; that is, taking all branches of occupations of an industry regardless of its suitability for an injured workman.

Short surveys are now being made and deal largely with the forms of work or occupations which in the opinion of the Survey Officers can be done by a disabled man.

In some of the larger centers the Survey Officers are acting in direct cooperation with a Placement Officer whose duty it is to follow up the information gained from the surveys and personally conduct the men who are moving from the schools to the industries to see that they get the proper entrance into the workshop. This Placement Officer also makes weekly or monthly visits to the industry and follows very closely the progress of the re-educated workers.

This information is tabulated on follow-up cards in Toronto and Winnipeg. The scope of the work in Montreal being smaller, has developed a different phase; that is, the man who is

detailed for industrial survey work also acts as Placement Officer, interviewer, and follow-up man.

It is the aim of the Commission, by means of a carefully planned follow-up system, to tabulate records of the men who pass through our schools and into the industries for from five to six months after they have graduated. This stage of the work is developing, and the returns so far have not been sufficient to form a basis of analysis.

Following is the summary of an address given by one of the district vocational officers before the Canadian Manufacturers' Association, Montreal:

The problem of re-education for disabled returned soldiers which Canada faces today is an economic one concerning man power, the producing power of the country.

Our work should appeal to you on economic grounds even if no sentimental grounds existed. It is true that this country has not completed her obligation to these men until it has enabled them to return fully equipped and adjusted to civilian life again capable of earning as much and enjoying life as fully as prior to enlistment, but it is a greater truth that from an economic standpoint these men simply must be enabled to become as efficient producers as formerly. If this country is to prosper we cannot afford to have thousands of men incapable of carrying on and of supporting their dependents.

In general the aim in respect of those men who are unable to go back to their former occupation is to direct them into new channels involving less physical effort and increased brain effort, in order that they may be able to compete successfully in their new occupations with physically fit men, and to earn, notwithstanding their disabilities, as high wages as they earned before if not higher.

Our re-education courses are at present carried on in conjunction with our own vocational classes connected with the hospitals, or at technical schools, but it is our aim that the latter and greater portion of this training where possible be given under actual industrial conditions, that is—in the workshops of the manufacturers. Our problem is to train a man in from six to twelve months in an entirely new trade or occupation as far as possible akin to his old, but necessarily in many cases radically different, so that in this period he may acquire sufficient proficiency to enable him to earn a wage at least as good as he earned before enlistment. To accomplish this means intensive training, for not only

have we to train the man in the new work, but he has to be taught to adapt himself again to civilian life and occupation. We feel that we are best accomplishing this work by getting the men out as soon as possible into the workshops on apprenticeship courses where they naturally adapt themselves to civilian and industrial environment, and will, we hope, in most cases be automatically absorbed in the shop where they have been trained.

We are assisted in determining what opportunities there are among the different trades and occupations of the industrial world for which disabled men can be trained by an industrial surveyor, a man thoroughly familiar with the nature of the disabilities from which men suffer, and possessing a fairly good working knowledge of most manufacturing processes.

With the consent of the executive heads of manufacturing concerns, this officer makes an industrial survey of their plants, which simply means that he goes thoroughly into their plants by personal investiga-

tion and discussion with the superintendents and foremen. He classifies the different operations in which men engage, the nature of the work, the training necessary, to adapt a man to this work, where this training could be best given, the length of the course necessary, what preliminary training is required in the school, and finally what disability would prevent a man from engaging in that occupation.

With this information in hand the Vocational Officer is in a position not only to direct the disabled soldier into a suitable new occupation but to lay out a course of study and training in our classes which will best prepare the man for the actual shop part of his training which will follow.

The work in British Columbia is just starting, but through the information gained from industrial surveys about eighteen men have been placed in suitable industrial establishments for the continuation of their training.

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Publications of the
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The Vocational School for Disabled Soldiers
at Rouen, France

By J. Breuil
Director of Instruction

Translated by
Gladys Gladding Whiteside



The Red Cross Institute for Crippled and Disabled Men
311 Fourth Avenue New York City

The Vocational School for Disabled Soldiers at Rouen, France

Many disabled soldiers on being discharged from the army find themselves prevented by their handicap from following their former trade. The state, realizing that it owes them reparation, grants them a pension, the amount of which depends on the severity of their wounds and the extent to which they are incapacitated for work, but this pension is, unfortunately, owing to the many demands on the treasury, never large enough for their necessities. The state, therefore, offers further help in the form of certain minor government positions, which it reserves for disabled soldiers. But since there are many more applicants than positions, the greater number of men who wish to eke out their pension in this way can only register on a list of candidates and then wait months or even years for their turn.

The pension is insufficient; government posts are too few. What then can be done to keep the disabled soldier from dependence or need? The remedy is to help him back into industry. If he is unable to practise his former trade, he must learn a new one which is compatible with his maimed condition. A former farm laborer, for example, who on account of the loss of his leg will never be able to follow the plow again, can learn to be a tailor, a shoemaker, a basket-maker, a clockmaker, a hairdresser, or a tin-smith. A former locksmith, paralyzed in his right arm, can learn to write with his left hand and, after receiving some general schooling, can study accounting and become a bookkeeper, commercial traveler, or the like. When a disabled soldier has learned a new trade, his earnings in addition to his pension will enable him to support himself and his family, and he will enjoy again the cheerfulness which comes from independence and useful activity.

Moreover, retraining a man to be a productive workman benefits not only the individual but the state. After the war France will have to make a tremendous effort to compete industrially with her enemies, and her greatest difficulty will be the shortage of the labor supply. She will have to utilize every resource, the whole effort of which every individual is capable; even war invalids must be utilized to the fullest extent to which they can be made capable. If they are not retrained for industry, the nation's output and its prosperity will be diminished.

Disabled men who are unable to go back to their former work and who do not learn to do something else run the danger of being reduced to appealing to charity or of yielding to the dangerous suggestions of idleness and misery. Social justice as well as the interest of the state demands that they be remade into self-supporting members of society. If public measures are insufficient, private efforts must supplement them. In recognition of the situation the people of France have formed into numerous groups and societies whose purpose is to help the disabled soldier back to a normal life. In order to attain their end, they can, we believe, employ no better means, no means more fruitful of results or of more far-reaching beneficence, than vocational training.

The project for a vocational school at Rouen originated with the Departmental Committee on Technical Instruction of the Seine-Inférieure. In June, 1915, the Committee received a circular from the Minister of Commerce asking it to consider the best method of providing trade training for disabled soldiers. It set to work on the subject immediately and began to study the conditions at Rouen with a view to providing such training. The Committee soon found that

they had to make a choice between the two possible methods of providing vocational training: that which consists in sending out men as apprentices to private industrial concerns, and that which collects them as pupils in a regular vocational school, where there is a workshop for every trade taught. Either system has its advantages and disadvantages. When apprentices are placed with private industrial concerns, an infinite number of trades are opened to them without the expense of constructing and equipping workshops. The apprentices, moreover, can live at home and readapt themselves to a normal life during their training. They and their work do not, however, receive adequate supervision. They may not be working under good conditions; they may not be accomplishing their object of learning a trade; they may be abusing their liberty. And the cost of providing them with means for their support during their apprenticeship may be very heavy. The system has besides been tried in other places with little success. After due consideration and in the belief that the school and workshop method would ensure systematic instruction, experienced teachers, and good discipline, the Committee decided in favor of that method.

Two members of the Committee, M. G. Fromage and M. R. Lemarchand, wishing to profit as much as possible from the experience of others, and believing that they could learn more in a brief time from first-hand observation than from lengthy descriptions and abstract theorizing, paid a visit to Lyons, where two schools for training war cripples were already in operation. They brought back a great deal of valuable information, and as a result the organization of the Rouen school is largely based upon that of the Lyons schools. The Committee are happy to acknowledge their indebtedness here.

The work of organization proceeded as rapidly as possible. An administrative committee of seven members was elected. It was decided to have both day pupils and boarders. The use of a building was given to the school by the city of Rouen, and a second adjoining building was rented for the shops.

The building given by the city was formerly

a school for girls at 56, rampe Bouvreuil, in a beautiful part of the city. Many changes and repairs had to be made to adapt it and the neighboring building to the purposes for which they were to be used, but the work was pushed with great vigor, and in November, five months after the project was conceived, the school opened its doors to its first boarder. Beside the dormitories, dining-rooms, classrooms, and shops, there are baths, a smoking and recreation room, and an outdoor courtyard for games, all freshly painted, well-lighted, well-ventilated, and scrupulously neat and clean. There were at first five sleeping halls with ten beds each, the school having provided for fifty boarders and one hundred day pupils; but the number who wished to enter as boarders soon exceeded the accommodations, and it was necessary to make enlargements. As there were also more pupils in bookkeeping and school subjects than could be accommodated in the classrooms, another house was hired at 106, rampe Bouvreuil, where there is ample space for teaching these subjects and where thirty men can sleep.

During the period when the founders of the school were engaged in the preparatory work of altering and equipping the buildings, they chose to act as a private association without any connection with the government, since in this way they could avoid the delays and formalities of official red tape. But as soon as the school was ready to open, they sought to put its finances on a permanent stable basis by asking the state to underwrite the enterprise, *i.e.*, to agree to bear all expenses not covered by the other resources of the school. The state agreed to this proposal on condition that the organizers of the school place it under the control of the departmental or communal administration or the Rouen Chamber of Commerce, so that some official body would be responsible for the expenditure and auditing of its funds. After negotiations in which the Prefect of the Seine-Inférieure played a helpful part, the organizers asked the Chamber of Commerce to assume official control. The Chamber of Commerce accepted the responsibility, confirmed the powers of the Administrative Committee, and appointed M. Desmonts,

vice-president of the Chamber, to represent it on the Committee.

The Administrative Committee has charge of the general management of the school. It holds weekly meetings, and its president, M. G. Fromage, makes a daily visit to the school to dispose of current business. In household problems, concerning board, laundry, nursing, etc., the Committee has received valuable help from Mme. Trévoux, a delegate from the Red Cross. The administrative staff is small: M. Breuil is director of instruction; M. Gillot is financial director and, with Mme. Gillot, has charge of the housekeeping and other expenditures. A doctor assigned by the medical service looks after the health of the pupils. The servants consist of a janitor, a cook, a housemaid, and a man of all work.

The money for the equipment and running expenses of the school was collected from many sources. There were first voluntary gifts, obtained by a public subscription. One of the earliest acts of the Committee was to address an appeal to the people of Rouen, to which they responded and continue to respond most generously. To the sum obtained by individual subscriptions have been added grants of money from the *Conseil Général* of the department, the *Conseil Municipal*, and the Chamber of Commerce. A large sum has also been contributed by the *Fédération nationale d'assistance aux mutilés*, of which M. Barrès is president. Any additional amount needed to cover expenses is paid by the national government under the conditions stated above.

Another source of income is from the sale of articles made in the shops. After deducting the cost of raw materials, the management divides the rest of the money from this source as a bonus among the workmen.

All disbursements are made by the financial director, who receives an amount corresponding to his needs from the treasurer of the Committee. Repair of buildings, cost of raw materials, wages of servants and staff, heat, light, board, and the payment to each pupil of a minimum wage of fifty centimes a day are the principal items of the budget.

The budget for 1916, providing for one hun-

dred day pupils and fifty boarders, amounts to 149,470 francs. But as the number of boarders is at present seventy-five, these figures will have to be revised.

All pupils who enter the school must be completely cured of their wounds, so that their instruction will not have to be interrupted by further medical or surgical treatment, and they must be either discharged from the army or be waiting for their discharge. If they are awaiting their discharge in a convalescent center, they must obtain permission to attend the school from the military authorities. It is to be hoped that convalescent depots for men awaiting discharge will be, whenever possible, located in towns where there are training centers, and that the military authorities will use their influence to persuade the men to attend the schools as day pupils. The men are benefited by being occupied during their convalescence, and the school welcomes non-boarders.

The Rouen school accepts men from any part of France, but if circumstances should make it necessary to discriminate, preference would be shown to men from Normandy.

The number of apprentices who have applied in the past few months indicates the gradual disappearance of a belief which formerly deterred many men from learning a new trade. This was the entirely groundless belief that any training which increased their earning capacity would produce a corresponding diminution of their pension. All uncertainty on the subject should be removed by the provisions of the Rameil Law, which has already been adopted by the Chamber of Deputies and will be soon taken up by the Senate. This law expressly states that "in no case can the amount of the pension be reduced because of vocational re-education;" and that "during the period of re-education if the wounded man is not receiving his pension, his family will continue to draw their separation allowance; if he is receiving his pension, but that pension is not so large as the allowance for subsistence and children previously paid the family, the family can continue to draw the difference."

Disabled men should also cease to fear that the payment of their pension will be delayed because of their attendance at a trade school. On the

contrary, in accordance with the regulations of the Minister of the Interior concerning re-educational centers, the pensions of men undergoing vocational training will be paid before those of any other class.

Pupils in the Rouen school, therefore, receive their pension or temporary allowance from the government under the same conditions as before they entered, and as was stated above, they receive an additional sum from the school of at least fifty centimes a day. They are under no obligation except to work at the trade they wish to learn and to conform to the regulations of the school.

The schedule of hours for the day is as follows:

6:30	Rising
7:00	Breakfast
8:00 to 10:00	Work
10:00	15 minutes' rest if desired
10:15 to 12:00	Work
12:00	Luncheon, and rest till 1:30
1:30 to 4:00	Work
4:00	15 minutes' rest if desired
4:15 to 5:00	Work
5:00 to 6:30	Elementary school subjects
6:45	Dinner
8:00 to 9:00	Recreation
9:00	Retiring

Day pupils arrive at 8 a. m. and leave at 6:30 p. m. Their noonday meal is given to them in the school. Pupils in the manual trades have every day an hour and a half of instruction in elementary school subjects, during which time they practise reading, writing, and arithmetic, learn to measure surfaces and volumes, to write a letter to a customer or wholesale dealer, to make out an invoice or a bill of work, etc.

On Thursday afternoons and Sundays, pupils are free to go where they choose—married men may even return to their homes on Saturday evening and stay until Monday morning—but no other leaves are granted except on serious grounds. In general, the rules are so few and so reasonable that the men keep them very willingly. If any pupil persists in violating the rules, he is first warned and then expelled.

The school has installed workshops for teaching the trades of shoemaking, tailoring, basketry, clockmaking, hairdressing, and tinsmithing. It

was guided in its decision to teach these trades by what seemed to be the best interest of the pupils, by the possibilities of the buildings at its disposal, and by the experience of other schools; but it does not intend that its decision shall be unalterable. If other trades are asked for by a sufficient number of apprentices and the resources of the school permit, instruction in them will be provided.

There is no fixed length of time for an apprenticeship in the different trades. Pupils are not supposed to stay a certain number of weeks, but until they have become good workmen. It is, therefore, left to the foreman in each shop to say when the apprentices under him have become proficient enough to dispense with further instruction.

The shoemaking section was the first one to be opened and has still the greatest number of pupils. Its popularity is probably due to the fact that men who have learned shoemaking can always return to their native place and follow their trade there with a reasonable expectation of success. A shoemaker is as useful in the small village as in the large city. It is, moreover, not a fatiguing occupation, and it is open to almost all disabled men who have two good hands. A few men in this section have partially lost the use of one arm, but the majority are crippled in the legs.

For foreman of this section the school was fortunate to secure a man who combined teaching experience with a practical knowledge of the trade. He is M. Desmettres, formerly a teacher in the vocational school at Tourcoing and now a refugee at Rouen. M. Desmettres' method of teaching is based on the rational principle of proceeding from the simple to the complex, from the easy to the more difficult. His pupils learn first to make a heavy thread out of silk and wax; they next practise stitches in scraps of waste leather; and from that pass to building up heels and sewing or nailing soles. After some practice in this sort of work a man can earn fair wages as a repairer, but he is always urged to continue his apprenticeship and learn to make new shoes. His course will be really finished when he can take measurements, build up a last, and make orthopedic shoes.

In tailoring there is a shortage of workmen owing to the large number of Germans and Austrians employed before the war, and the trade, therefore, offers openings for disabled men. It is also an agreeable trade, clean, not very fatiguing, and fairly remunerative; and like shoemaking it can be practised in any part of the country and often in a man's own house. It is a suitable trade for a man with an injured or amputated leg, and should not be ruled out for those who have a partially disabled hand or arm. One of the best apprentice tailors in the Rouen school has lost half of his left hand.

In organizing and equipping the tailoring shop the Committee received valuable aid from the tailors' union of Rouen. The union realized that a school for training workmen in their trade claimed their interest and cooperation aside from humanitarian reasons, and they have supplied the school with equipment and material and a competent and faithful foreman. The foreman, M. Wedel, begins by teaching his pupils to make collars, revers, linings, and pockets, and to use the pressing iron and the sewing machine. Next he puts them to work on blouses and jackets, and when they have become proficient in this work, they can find a position if they wish. It is to their advantage, however, to continue until they can qualify as cutters or assemblers, when they can obtain much better positions and wages.

Local conditions made it advisable to teach basketry in Rouen. The great spinning and weaving factories of the city use a great many willow baskets to contain their raw materials and their finished products and subject them to such strains that they must be frequently repaired and replaced. Dairying and fruitgrowing, which are important industries of the surrounding country, also call for a large number of willow baskets, in which butter, cheese, and fruit may be packed for shipping to England. In addition to these special demands of local industry there is the usual demand from bakers, confectioners, laundries, etc. Since basketmaking can be taught in a short time and does not demand great exertions, it is a suitable trade for war invalids. Men can work at it sitting down as they do at tailoring and shoemaking; a wound in the leg will not

hinder them, but they must have complete use of their two hands.

M. Goulet, the foreman, who has had experience in teaching basketry, is peculiarly suited for the position. His pupils first make the bottom of a round basket and then the body of the basket, learning close weaving before the more difficult open work. When they can make round baskets, they pass to oval ones, and lastly to square ones. Then they take up repairing.

A workman who is content to do only repairing can earn up to five francs a day, but if he continues his apprenticeship until he can construct a complete basket, and is master of his craft, he can at piece work easily earn from six to seven francs a day. Apprentices in the school shops have more work than they can do in filling commissions for the cloth mills and butter merchants of the city.

In the workshop for clock and watchmaking all the equipment and the services of the foreman, M. Huot, were supplied by the clock and watchmakers' union. It would seem as if only men with two good hands and very supple fingers could expect to learn a trade which requires such fine work and the delicate handling of such minute pieces of machinery, but experience has shown in this as in many other cases that one cannot generalize about what trades are open to the various grades of disabilities. One man in the section has only a limited use of his arms, and another has no use of his right hand, all the fingers and the thumb being paralyzed; yet both are making satisfactory progress. When a man has the will to succeed, he will often develop an ingenuity in using tools that makes up for his disability.

A clock or watchmaker must go through a fairly long apprenticeship. He must begin by learning to use a file and lathe. The next step is to make simple parts of clocks and the tools of the craft; then to practise the use of his tools until he acquires the technique of his trade. When he arrives at the point where he understands the mechanism of a clock and can be relied on to discover and remedy its defects, he can earn five francs a day. When he has acquired the same knowledge of a watch, he can earn seven francs a day. The school does not teach him how

to repair elaborate chronographs and antique works, an understanding of which would make him a specialist in his line, but it gives him the necessary groundwork for acquiring such knowledge.

The section for hairdressers and wigmakers has also received aid from the union of workers in the trade. M. Lemasson-Cuerville, vice-president of the union, has lent a beautiful wax bust of a woman with hair dressed in the latest style, and placed on view some of his wonderful creations in hair pieces—beautifully waved bangs, airy puffs, and golden chignons—which are models for the apprentices and temptations to the ladies who visit the workrooms. The union has also supplied drying stoves, carding tables, and other implements for work, and the foreman, M. Marchand.

M. Lemasson-Cuerville has drawn up a program of apprenticeship for his trade, which we would insert here entire if space allowed. He begins by speaking of the advantages of the trade for disabled men. It does not require great physical exertion; most of its operations can be carried on in a seated position; it involves no danger. To become a good workman a man needs only to wish to be one and to be capable of attentive, systematic, and painstaking effort. There are many openings now in the industry as a large amount of hair goods were formerly imported from Germany. Even since the outbreak of the war there have been attempts to send in German goods over the Swiss frontier. M. Lemasson-Cuerville says that he himself, acting as a customs expert, recently refused admission to one million francs' worth of band switches.

He next takes up the different steps in hair work and explains in detail how hair is sorted according to length and shade, then cleaned, and then curled, when it is ready to be used in hair pieces. Next he treats of the two classes of hair workers: those who come in contact with their customers in taking measurements and matching shades, and those who in the workroom make the piece as ordered. Workmen trained in the school will usually be of the second class, but those of special aptitude can advance into the first class. All apprentices must learn to arrange the hair

in bands and curls, to make a lifelike wig by fastening the hair in a tulle foundation, and to put a wave in a finished hair piece.

Before the war a hairworker could usually earn from six to ten francs a day according to his skill.

Owing to a delay in obtaining the equipment, the tinsmiths' shop was opened only a few weeks ago, but it is now running smoothly under M. Thébault as foreman. The trade is an interesting and fairly easy one and can be followed almost anywhere. In a village a tinsmith is always needed to repair pipes, roofs, pots and pans, lighting fixtures, dairy utensils, and agricultural implements. In the city he can obtain a good position in a repair shop or in a tinware factory. Or a man who has a little capital and can purchase the necessary outfit and materials can turn his shop into a factory on a small scale and make pails, cans, pots, casseroles, etc. If he manufactures a number of each kind, he can obtain a very fair profit from them. But there are still other openings for a tinsmith. Since he can make whatever is formed of sheet metal, he can find employment in factories for household utensils, sprinkling instruments, articles used in hydrotherapy, lamps, lanterns, automobile lights and accessories, oil stoves, metal toys, articles used in cellars, vineyards, dairies, in medicine and surgery, in the navy and on railroads, for zinc ornaments, acetylene apparatus, and small sheet iron and forged objects. A man with a trade which admits him to so many industries is not likely ever to be out of work. As tinsmithing is also a remunerative trade, it deserves careful consideration by a man who wishes to learn to be self-supporting.

The experience of the school at Lyons made it apparent to the organizers of the school at Rouen that there was a real need for a section in bookkeeping and general schooling. Many men have been so badly wounded that they are unfit for any manual occupation and cannot hope to earn a living except by office work. It was to offer the needed training to such men, mostly wounded in the arms or hands, that the section was founded. The original plan was to teach bookkeeping only, but so many men applied for other instruction that courses in elementary school subjects were

added. Men aspiring to government positions as postmen or copying clerks found themselves handicapped by a lack of education and asked the school to supply them what they needed; others without a definite aim in view came to improve their general knowledge; and some almost illiterate men asked for the schooling of which experience had taught them they were sadly in need.

All the teachers in the section give their services without charge. The bookkeeping course is conducted by M. R. Pelcat, an expert court accountant, who unselfishly takes twelve hours a week from his own interest to devote to our pupils. He is assisted by M. Brument, an attorney, who gives an interesting and useful course in commercial law, and by M. Delauné, an accountant, who not only teaches classes, but keeps the books of the school. These teachers were obtained through the *Union philanthropique des employés de la ville et de l'arrondissement de Rouen*. Pupils who wish to pursue their study of bookkeeping after they have left the school can attend evening courses supported by the *Union philanthropique* and there prepare themselves for a bookkeeping diploma from the *Académie de Comptabilité* of Paris. Or, if they leave the vicinity, they can take a correspondence course.

Other things than accounting must be taught to maimed workmen who expect to become bookkeepers. They must have practice in writing and spelling, in arithmetic and geography, and when possible, they should learn English, stenography, and typewriting.

Stenography and typewriting are taught by M. Leclerc, director of the *Bureau moderne*, and by Mlle. Vavasseur, each of whom gives three hours a week. Writing is very successfully taught according to a new method by M. Christen, who holds two sessions weekly of an hour and a half each. These three teachers were also obtained through the *Union philanthropique*.

For teachers in other subjects the school applied to the Department of Education. M. Doliveux, the highest official of the department at Rouen, at once interested himself actively in the project and began to supervise the organization of courses and to collect the necessary teachers. Much credit is also due to M. Lestang, director of the Teachers' Normal School, who permits his student teachers to give our disabled soldiers lessons in French, arithmetic, writing, and English. MM. Brisset and Dupéron, teachers in the Normal School, each give an English course of one hour a week, and M. Martin, primary inspector, a one-hour-a-week course in commercial geography. The general schooling which workshop apprentices receive for an hour and a half every day is given by two volunteer teachers, who are replaced every two weeks by two others, following a rotation started at the opening of the school. From the preceding account it is clear that the Department of Education and members of the school system have an important rôle in the work of aiding disabled soldiers through re-education.

The schedule of hours in the section of bookkeeping and general schooling is as follows:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00 to 9:00	Bookkeeping	Bookkeeping	Bookkeeping	Arithmetic	Bookkeeping	Bookkeeping
9:00 to 9:30	Bookkeeping	Bookkeeping	Bookkeeping	Study	Bookkeeping	Bookkeeping
9:30 to 10:00	Study	English	Study	Study	Study	Study
10:00 to 10:30	English	English	Bookkeeping	Writing	Study	Study
10:30 to 11:00	English	Study	Writing	Bookkeeping	Study	Study
11:00 to 12:00	Stenography and Typewriting	Arithmetic	Stenography and Typewriting	Study	Stenography and Typewriting	Arithmetic
1:30 to 2:00	Study	Study	Study	Leave	Study	Study
2:00 to 3:00	French	French	French	Leave	French	English
3:00 to 4:00	Study	Geography	English	Leave	English	Study
4:00 to 5:00	Study	Study	Study	Leave	Study	Study
5:00 to 6:00	Writing	Study	Study	Leave	Writing	Study
6:00 to 6:30	Study	Study	Study	Leave	Study	Study

Subjoined is an outline of the bookkeeping course:

Business

Elements of the history of business, merchants, commercial values, commercial law, bills, invoices, negotiable paper, etc., transportation, customs, taxes, excise, bonded warehouses, docks, general stores, merchants' exchange, insurance, business and industrial administration, business institutions.

Business Correspondence

General rules, specific cases.

Business Arithmetic

Short cuts, metric system, French and foreign measures and money, proportion, percentage, simple interest, discounting, profit sharing, net cost, current accounts.

Bookkeeping

Historical, laws relating to accounting, general considerations, methods, accounts, subsidiary books, principal books, balance sheet, inventories.

To this program, which is the same as that of the *Académie* at Paris, there is added some description of the different systems of accounting with some practical work in keeping books. All of the instruction is made as practical as possible, and as a result excellent assistant bookkeepers and even good bookkeepers are turned out in a comparatively short time.

The limits of this volume do not permit other outlines of courses to be given here, for conditions in the school are such that for the majority of courses no hard and fast program can be drawn up. In the elementary school subjects, especially, it would be difficult to follow a detailed program laid down in advance. Pupils do not come with a uniform preparation, nor do they all start a course at the same time, and the instructor must be constantly changing and adapting his program to suit their individual needs. By forming sections and sub-sections, by giving private lessons to late comers, and by taking advantage of a friendly spirit of mutual helpfulness among the pupils, the teachers try to overcome the difficulties of their task, and to arrange their material so that each pupil will get all that he can out of the course.

All things considered very satisfactory results are obtained in the elementary school classes.

The pupils take such an eager interest in their studies and show such industry and zeal that they usually make rapid progress. One-armed men who are obliged to learn to write with the left hand acquire in a short time a rapid elegant hand which professional copyists would envy. Courses in dictation and grammar effect a remarkable improvement in the style and spelling of almost all our pupils, and many who knew no arithmetic at all learn to figure interest and discounts, to measure volumes, and to solve similar practical problems. There are some who have made good progress in learning English.

In the bookkeeping section many pupils have made really astonishing progress. Men who have never in their lives done anything but manual labor, have turned to this new utterly different kind of training with great enthusiasm, and shown taste and ability for the work. M. Pelcat, the instructor, estimates that many of his pupils will be excellent bookkeepers at the end of six months, and he hopes to make the best of them worthy of being called real accountants.

While men who are prevented from their wounds from taking up their former trade and who make no effort to learn a new one are usually obliged to accept a very low wage, those who have the energy and perseverance to acquire new skill and knowledge can counteract their disability and obtain well-paid work. The Committee of the Rouen school, wishing its pupils to feel that they will reap a just reward for their efforts, undertakes to find each man a well-paying position suited to his capacities. The Committee is helped in doing this by its relations with the Chamber of Commerce, through which it comes in contact with all the manufacturers and business men of the city, and by the interest and aid lent to it by the state, departmental, and city administrations. Its recommendation with any of these is never without effect.

Up to the present the school has not only had no trouble in placing its pupils, but it has often had to help them to decide between two or more positions. It uses its influence with its pupils against their leaving the school for the first position that offers, when by staying longer they might acquire training which would fit them later for a much better position. Pupils from the

bookkeeping and general schooling section have been placed as clerks in the post office and prefecture, and as assistant bookkeepers and accountants in business houses. In one case the employer voluntarily made the conditions of work easier when he learned that the applicant was a pupil from our school.

We hope that as more pupils leave the school to enter employment, the kind of work they do will bear testimony to the kind of training they have received, and that the title of pupil of the Rouen School of Vocational Re-education will be an acceptable recommendation to employers and a valued reference for disabled men.

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Provision for War Cripples in Italy

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Provision for War Cripples in Italy

I. Organization

The system of care for war cripples in Italy is, in comparison with the other countries, still in its rudimentary stage. The first steps, theoretic discussion and preliminary organization, are still occupying a great deal of attention and actual practical results are only just beginning to be evident. This is very natural, because Italy, on her entrance into the war, had almost no facilities for such work. She had no artificial limb factories, scarcely any cripple homes or system of education for cripples, and very few social organizations competent to undertake it. The whole system had to be built up from the foundations, in contrast to Germany where there was a complete system ready to hand. In building up this new work, there is a distinct effort to make it comprehensive and scientific, by a careful study of the methods of other countries, particularly of France. The Italians are their own most radical critics and are prepared to study the experience of other countries and to apply it as advantageously as possible.

The history of work for war cripples in Italy is that of most other countries. It began in scattered private efforts which were later co-ordinated and brought more or less under government control. The northern industrial provinces were the first to move. Even before Italy entered the war Lombardy had organized a committee, the *Comitato Lombardo per i Soldati Mutilati in Guerra* (Lombard Committee for Soldiers Crippled in War), which worked in connection with the Milan *Istituto dei Rachitici* (Institute for Rachitics) to give orthopedic treatment and trade training to war cripples. The work was done in close cooperation with the military authorities. The Institute was constituted a military reserve hospital, its officers being given military rank; men were sent there

direct from the field hospitals and given their orthopedic treatment under military discipline. After this, if they desired it and the committee found them suitable, they were transferred to a subsidiary convalescent home for trade training, this also under military discipline. The government and the Lombard committee shared the expense of buildings and maintenance. The government paid the committee 3.50 lire a day for each man's board, and the committee allowed the men a small allowance.

The Milan school, which is still the largest and most scientific, became the model for succeeding institutions. The other provinces were much slower in organizing and after the first twelve months of Italy's participation in the war the Milan school was still the only one fairly started.¹ However, committees were formed little by little on the pattern of the Milan committee until, in November, 1917, there were altogether twenty-four, accommodating about twenty per cent. of all the war cripples.² A few of these committees had schools actually in operation, others were merely planning them. All the schools were modelled on that at Milan, where training was under military discipline but the choice of training was voluntary.

The committees in each province worked together in a sort of loose affiliation, but a more definite co-ordination was felt to be necessary, so the next step in organization was taken and there was formed a voluntary national association, the *Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati* (Federation of Committees for the Assistance of Blind, Lamé and Crippled Soldiers).

¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 105.

² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 297.

NATIONAL FEDERATION

The function of the Federation is mainly advisory and the local committees keep their independence and initiative. Their method of organization varies in different provinces. In Lombardy and Sicily, for instance, there is only one committee for the whole province and the work is concentrated in the largest city. In Tuscany and Venetia there is a group of small committees all working in co-ordination and running several small separate schools.

The work of the Federation is to co-ordinate and supervise the work of the local committees and to keep them informed of new developments in the work, and to concern itself with legal measures for the care of war cripples. It publishes a monthly magazine describing the work of local committees and discussing possible new measures.

NATIONAL BOARD

From the very beginning of the work for war cripples in Italy it was taken for granted that there must be government regulation of the schools and definite financial support. The framing of a suitable bill for this purpose occupied almost a year of discussion. One bill was voted down by Parliament after long consideration but finally, March 25, 1917, there was passed the law providing for the *Opera Nazionale per la Protezione ed Assistenza degli Invalidi della Guerra* (National Board for the protection and Assistance of War Invalids).³ This law and the supplementary regulations published by the Minister of the Interior in August, 1917,⁴ form the basis for all re-educational activities and state the limits of government and private responsibility. The functions of the board are stated to be assistance to war cripples in

1. Medical treatment (in so far as this is not covered by the military authorities).
2. Material relief.
3. Re-education.
4. Placement.
5. Claiming of pensions.

³ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 66.

⁴ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 199-213.

This does not mean that these activities are actually to be taken over by the board. It merely supervises and assists, filling in the gaps wherever necessary. The re-education schools are to remain, as before, under the management of the local committees, but the board is to supervise and inspect, giving charters to new committees and revoking charters of those which do not come up to the standards. It will largely replace the voluntary Federation which has announced its intention of giving up its work as soon as the government board is actually in operation. Owing to the necessary delay in choosing the parliamentary representatives, the board had not up to December, 1917, held its first meeting. Its first provision is, as mentioned above, a government board which shall be the official body supervising and regulating all the work for the war cripples. This board consists of nineteen members. Four are elected by Parliament, two senators and two deputies. The other fifteen are appointed by royal decree on the suggestion of the prime minister, as follows: five ministerial nominees, representing the departments of the Interior, War, Navy, Treasury, and of Industry, Commerce and Labor; two nominees of the surgeon general who shall have special technical qualifications; three nominees of the volunteer associations for the care of war cripples, one from the actual institutions caring for war cripples; four elected by the national war cripples' association.

The board is under the Minister of the Interior. It must render a report to him every year which he in turn must present to Parliament. A yearly appropriation is set aside for it from the budget of the Department of the Interior.

The board has its office in Rome, with the offices of the Ministry of the Interior, its office force being furnished by the government. It is supposed to work in very close connection with the societies and institutions all over the country which are concerned with war cripples and thus to have an authorized representative in every locality. There is criticism of the board by the existing social agencies, to the effect that it may easily become bureaucratic and political, and so be out of touch with the actual needs of the work.

Until the board has fairly started its activities it is not possible to tell how real this danger is. The Federation is in close touch with the prime minister who has the appointment of a majority of the members and has itself been allowed to nominate three of them, so hopes to control this difficulty.

II. Legal Measures

The law above mentioned, in addition to creating the National Board, fixes the general system for treatment of cripples all over the country. Its regulations are as follows.

Crippled soldiers, after their first surgical treatment are to be sent to military *Centri di cure fisiche ed ortopediche* (centers for physical and orthopedic treatment). These are military reserve hospitals under the army medical department with special facilities for orthopedic treatment. There are nine of them in the country, located in the army corps districts of Turin, Milan, Genoa, Verona, Bologna, Florence, Rome, Naples, and Palermo. A soldier is in each case to be sent to the center nearest his home or, if that is not possible, to the next nearest.¹

At the centers the men are to receive functional re-education, massage, and mecano-therapy and to be furnished with a temporary artificial limb at the expense of the government. They are not kept until the stump has assumed its permanent form.²

When their cure has so far progressed that they will profit most from re-education, they are dismissed from the orthopedic hospital on *breve licenza* (short leave) and allowed to visit their homes. After the term of leave, generally a month, has expired, those designated by the center as capable of re-education must present themselves, as part of their military duty, at the nearest re-education school. The men excused from this duty are those hopelessly crippled or those who give proof that they do not need re-education or can attend to their own. They are given *licenza straordinaria* (long leave) and may

remain home until ready for their permanent prosthesis.

The compulsory stay of any man at the school is limited by the law to fifteen days. During that time he is fitted with his permanent prosthesis which is selected for him by the school at the expense of the government. The school also has every opportunity to convince him of the value of re-education. If he consents to training, he remains under military discipline. If he refuses, he receives his discharge from the local military authority.

This combination of voluntary choice and military discipline was already the arrangement adopted by most of the schools. It was admitted by all the workers in the field that the ignorant and usually illiterate Italian peasant would be very difficult to train without the aid of military discipline. But it was also felt that men would not make good subjects for training unless they went into it voluntarily. The main difficulty which the schools had experienced was that of getting information about re-education possibilities distributed through the army, and compulsory stay in the schools was proposed as the simplest way to accomplish this. It will also be an easy method of getting statistics about the cripples as they pass through the schools, whether they remain for re-education or not. The fault found with the measure is that at present the schools have not accommodations to take care of every cripple dismissed from the orthopedic hospital, even for fifteen days. Only twenty per cent. of all cripples in the country are now being re-educated.³ This fact was pointed out to Parliament by members of the Federation and it was stated that unless the government would be willing to provide additional schools the provision would become a dead letter. The warning was not observed, however, so the schools will be obliged to apply their own judgment in carrying out the law.

REGULATIONS FOR SCHOOLS

The schools, which are in this way given a semi-official position, are held strictly accountable to the National Board. Any school, before

¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 8.

² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 203.

³ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 6.

being recognized as fit to receive cripples, must show

1. That it has adequate buildings and equipment.
2. That it is directed by a competent person who must be a doctor or assisted by a doctor.
3. That it is scientifically organized and directed and that it possesses the proper scientific apparatus for functional re-education.
4. That it has a workshop where artificial limbs and appliances can be properly altered and repaired.
5. There must be attached to the staff a re-educated cripple, nominated by the local branch of the national cripple association.

The schools are responsible to the National Board in all matters of re-education and are subject to regular inspection. In matters of hygiene, sanitation, and discipline, they are responsible to the war department which inspects and furnishes disciplinary officers. The schools are expected, under the law, to receive all cripples who apply for re-education but, owing to their present accommodations, this part of the regulations cannot be observed.

When a man is accepted for re-education he remains as a regular member of the army. He may remain at the school for a maximum period of six months. During this time the war department pays the school 3.50 lire a day for his maintenance, pays the man a regular sum, according to his rank⁴ (a private has twenty centesimi, four cents, a day), and maintains his family at the same rate as though he were in active service.⁵ If his training is not complete at the end of six months, the National Board may retain him longer at its own expense. If he is ready to go sooner, or if he is unruly or unfit for training, the local military commander may discharge him at any time.⁶

Since, at the time the law was passed, there were a great many cripples in Italy already dis-

charged from the army without any opportunity for re-education, the law provides that these men also may be accepted at the schools on application. In that case they must submit to the discipline of the school although they are discharged. Their expenses are borne by the National Board instead of the War Department.

As soon as a man has entered the school his trade is decided upon. The decision is made by a committee consisting of the head physician and the director of the school; an inspector from the Department of Industry and Labor or a person delegated by the National Board, due consideration being given to the wishes of the cripple and to the representative of the war cripples attached to the staff. The same committee decides on the man's dismissal from the school when his training is complete. On his dismissal the National Board and the local military authority must be notified.⁷

If a man leaves the school furnished with a certificate that he has satisfactorily completed his re-education, the National Board may give him a money prize. Certificates are to be given only to those men who have done conscientious work and who have become really able to support themselves.⁸

ARTIFICIAL LIMBS

The men come to the school furnished with temporary prostheses from the orthopedic center. During their training, if the school thinks advisable any special working prosthesis, it must supply it at its own expense. Before the men leave they are fitted with permanent prostheses which are ordered by the school on models approved by the War Department. No work prostheses are supplied, but only so called aesthetic limbs. Permanent work prostheses must be given by the school at its own expense. The limbs may be made either by the factory attached to the school or by firms authorized by the War Department. Such limbs must be inspected by a commission appointed by the

⁴ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 69.

⁵ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 210.

⁶ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 205-206.

⁷ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 204.

⁸ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 207.

Minister of War and including a representative of the National Board. The limbs must be adjusted at the re-education school which is the only agency authorized for this purpose and which must instruct the men in their use and care as part of its duty.

All repairs to the limbs are paid for, not by the War Department, but by the National Board. It is not obliged to pay for repairs caused by a man's own carelessness and must have inspectors to see that the men make good use of their prostheses.

This triple division of the duty of furnishing prostheses has been much criticized by opponents of the law. By it the government pays for temporary and permanent limbs, but only aesthetic ones, the schools pay for working prostheses and the National Board for repairs. It is felt that, besides the complexity of the arrangement, this means inefficiency and injustice. The aesthetic limbs are both expensive and nearly useless so that in giving only these the government has not done its real duty. Members of the Federation feel that for the price the War Department now pays for an aesthetic limb it could provide a really good working prosthesis with attachable hand or foot such as is used in Germany and thus relieve the schools of an unjust obligation. The main idea in having the National Board pay for repairs was that these will be necessary for many years after the close of the war and will be no longer necessarily a War Department duty.

RESPONSIBILITY AFTER DISCHARGE

After men are discharged from the schools and from the army the National Board is expected to provide as well as possible for their future. For those who need further medical care because of relapse or developing illness it provides convalescent homes at which it pays for their treatment.⁹ For those who have no families to return to and yet need a certain amount of care it pays for board in private families which must render a regular account to the Board.¹⁰ For all men capable of earning their own living it is supposed to find positions. This last is, of course, a rela-

tive matter. The law merely states that the Board must make every effort to place such men and that all public officials, civil service, mines and railways must render every possible assistance. Public employment bureaus subsidized by the state and also provincial and communal employment bureaus are to attend to the placement of war cripples without charge.

All employees in civil service or in charitable institutions who have become war cripples have a right to re-instatement if pronounced physically able to do the work. There is published also a list of civil service positions which will be reserved for war cripples. Men applying for them must have a physician's word that they are able to do the work, and among such men the most eligible will be chosen. In competitive examinations for civil service positions, other things being equal, war cripples will be given precedence.¹¹

Private firms are obliged to re-instate their employees crippled in the war if the employees can pass a medical examination proving their fitness for the particular work. The medical examination and the necessary certificate are to be furnished by the National Board, which also arbitrates between the cripple and the employer in case the latter refuses re-instatement without reason.¹²

OTHER PROVISIONS

The National Board looks after the interests of cripples in the settling of pensions and in any legal difficulties in which they may become involved and acts as guardian to any who are of unsound mind.

Loans for buying land or establishing themselves in business are made to soldiers on security of pensions.

Accident insurance companies are obliged to insure war cripples on the same terms as any other workmen. They are not allowed to charge a higher premium to stores or factories where war cripples are employed unless the number of these passes a certain proportion. If there is a particularly large number of war cripples in any

⁹ and ¹⁰ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 206.

¹¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 68.

¹² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 208.

establishment, a slightly higher premium may be agreed upon with the Minister of Industry and Labor.¹²

Pensions are not in any way to be affected by either re-education or employment of war cripples.

The government promises, with the aid of the Ministers of War and of the Navy, to provide as soon as possible for a census of all the war cripples in the country, discharged or still in service.

This law makes the general basis for the care of war cripples fairly definite. There is, of course, much criticism on the ground that it was framed and passed by politicians and not by experts, that its provisions will be immensely slow in coming into operation and that it promises a number of things which cannot be carried out. The bureaucratic nature of the Board, the lack of accommodation among the schools to whom so much responsibility is given, the illogical division of responsibility for artificial limbs, are the principal ones. In relation to the promised census it is also stated that unless it is taken by people with social training it will be purely medical and official and will give little basis for planning the after-life of the cripples. The provisions of the law are still being discussed and amplifications suggested.

III. Medical Treatment and Artificial Limbs

It will be seen that the general relation of medical treatment to trade training in Italy is that first followed in France and still in England, where training follows treatment, rather than that of Germany where the two are simultaneous. Though the two processes are separate, the agencies responsible for them are not, the National Board and the War Department being both concerned in both processes. Since the successive processes of rehabilitation are the same in all countries, we may take up the work being done in Italy in the usual order, *i. e.*, medical treatment and functional re-education,

provision of artificial limbs, trade training, and placement.

Italy is still incompletely equipped with orthopedic hospitals. There are only nine military orthopedic centers in the country, the reserve hospitals at Turin, Milan, Genoa, Verona, Bologna, Florence, Rome, Naples, and Palermo. Most of these are excellent, particularly the hospital at Milan, furnished with all modern devices, the *Istituto Rizzoli* at Bologna, and the *Clinica Rummo* at Naples. The Red Cross has also equipped an excellent orthopedic hospital, the *Istituto Romiti* at Spezia, and others are being gradually supplied by the volunteer committees.

The interest in scientific care for cripples is very keen: though the subject was not much studied before the war, specialists are doing remarkable work on it now. Italy has followed France in her interest in scientific apparatus for measuring muscular capacity: most of the hospitals are furnished with Professor Amar's machines for this purpose. There is also much use of mecano-therapeutic apparatus for re-education of the stump and much study as to its best treatment. A great deal of this appears still to be theoretical.

Most of the technical journals are just beginning to discuss the value of outdoor exercise and games in functional re-education, a factor which plays such a large part in German therapeutics. This is being tried at Bologna with great success.¹

The criticism made by experts in the cripple field is that so far much too much money has been spent on elaborate mechanical aids, and that the simple factors of easy work and outdoor play have been neglected.² Since functional re-education is such a new subject, it is also stated that at the beginning of the war many men were sent home without any attempt at it, and, therefore, suffered from unnecessary stiffness and from ignorant use of prostheses.³

¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 132.

² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 112.

³ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 36-37.

¹² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 209.

ARTIFICIAL LIMBS

The whole problem of artificial limbs, like that of functional re-education, is only beginning to be dealt with in Italy. Before the war such limbs were obtained from Germany and there were almost no facilities for manufacture at home. At the beginning of the war there was great hardship because of the difficulty of obtaining any artificial limbs at all for many of the cripples. Such as could be had were of an ancient type with none of the modern improvements.⁴

Soon after Italy's entrance into the war there was formed at Milan a committee to establish a national factory for prostheses. The committee received the support of the army medical authorities and of the Minister of War and had capital contributed from all parts of the country. A representative was sent to England and France to study the best forms of prostheses. The factory was then started under a committee of experts, its object being to manufacture artificial limbs and sell them to the government at cost and to study and perfect their manufacture.⁵

Since even this national factory cannot supply all the limbs for the whole country, various other shops have sprung up. Re-education schools are all obliged by law to have a shop for repairs and many of them manufacture all their own prostheses. There are also private firms which furnish limbs on specifications from the War Department. The criticism now made is that whereas at first men had to wait unduly long for their prostheses these are now furnished so soon that the stump has not time to heal properly.

No standard type of limb has yet been decided upon, but the government in March, 1917, appointed a Commission to study the matter and lay down rules.⁶ This commission has not yet reported.

⁴ *Comitato Lombardo per i Soldati Mutilati in Guerra*. Milano. *Milano e la Lombardia per i soldati mutilati in guerra*. Relazione . . . March, 1917, 37-38.

⁵ *Comitato Lombardo per i Soldati Mutilati in Guerra*. Milano. *Milano e la Lombardia per i soldati mutilati in guerra*. Relazione . . . March, 1917, 40.

⁶ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 107.

At present the types used are various. As mentioned above, the government agrees only to furnish aesthetic limbs which are generally of an old-fashioned and useless type. There is much propaganda among doctors and school directors as to the value of the simple and inexpensive work prosthesis which is really more durable and useful than the aesthetic limb. The new Italian inventions advocated are all of this type.

1. *Paoletti Leg*. Made and used at the Florence school. This is a jointed steel skeleton. The upper part consists of two horizontal steel-wire rings a foot or so apart into the upper one of which the stump fits. There is an aluminum sphere at the knee with an axis connecting with the lower leg which consists of a steel rod replaceable by a wooden aesthetic leg.⁷

2. *Zumaglini Leg*. This is a simple wooden leg with a ball and socket joint, fixable in extended position. A calf and foot can be adjusted over it for dress purposes.⁸

3. *Putti Leg* (for transition stage). This is also an artificial peg leg, the wooden frame into which the stump fits being triangular rather than round and adjustable to suit the size of the changing stump.⁹

4. *Zumaglini Foot*. A wooden foot in two pieces with a ball and socket joint, upper and lower piece joined by upright steel band. The wooden pieces move easily on one another when walking and the foot can be bent in any direction, even laterally.¹⁰

5. *Hoefmann Arm* (for upper arm amputations). This is a long leather cuff fitting over the stump and attached to a canvas harness laced around the chest. At the end of the leather cuff is a flat plate into which appliances or a dress arm may be screwed.¹¹

⁷ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 262-263.

⁸ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 13-15.

⁹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 283.

¹⁰ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 295-296.

¹¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 2-3.

6. *Zumaglini Arm.* This is a steel claw fitted with a spring so that it can be fixed in any position. It is to be attached to a flat plate like on the Hoeftmann arm, above.¹²

Paolo Bottari, of the Turin Agricultural School, recommends that men should use the stump in every way possible. His method for arm amputation cases is to teach the remaining hand to do the skilled work and supplement it by long-handled tools attached to a ring at the waist or shoulder instead of the other arm. He also feels that each cripple can best invent his own prosthesis.¹³

Very little has been done in the matter of appliances to help the work of cripples. Several inventions are suggested to hold a shoe for shoemakers who cannot use the knee,¹⁴ and a little has been done toward altering simple farm tools.¹⁵

An exhibition of artificial limbs was held at Bologna in March, 1917, under the auspices of the Ministers, the Federation, and the Red Cross at which prizes were awarded for the most useful ones.¹⁶

The *Comitato Regionale di Mobilitazione Industriale per la Lombardia* (Local Committee on Industrial Mobilization for Lombardy) has arranged a contest to be held at Milan under the patronage of the Ministry of Munitions for the exhibition of mechanical aids to work for cripples. The object is to facilitate the work of men with arm amputations at mechanical employment.¹⁷

IV. Re-education

Re-education constitutes a special problem in Italy, because such a large proportion (eighty

¹² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 291-293.

¹³ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 318-320.

¹⁴ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 32-34.

¹⁵ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 318-320.

¹⁶ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 98.

¹⁷ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, II, 185.

per cent.) of the men to be re-educated are peasants with no background of experience in any trade and very often illiterate. The result is that the re-education schools must include a much longer elementary school course than is necessary in other countries and that the trades taught cannot be so advanced and specialized. The general plan of the schools has much more in common with that of a regular public school for children than is the case in Germany, for instance, where discipline is not military and the trades taught are suited to mature and experienced men.

The whole character of an Italian school is formal and institutional, as it must be in order to impress the primitive mind with which it has to deal. The schools are institutional in appearance, since there is generally a convent, a palace or some impressive public building which can be donated to the committee for the purpose. Most of the men reside in the school under military discipline, though day pupils are taken if they reside in the town and wish to return to their homes at night. The hours of work, recreation and leave off bounds are all carefully regulated and stated by the school in its report to the Minister of War, as is also the number of meals furnished to the men and the kind of food. The plan of work is thoroughly formal. Almost all the men are required to take an intermediate and sometimes an elementary school course before beginning a trade. At the conclusion of each course they are graduated with proper ceremonies and given a diploma before being promoted to the next. On being graduated from the school they receive a certificate stating their fitness to follow a trade and support themselves and generally prizes from the committee and the chief citizens of the town. It is found that this sort of ceremony is a decided help in keeping up the men's interest and pride in their work.

This chance at an all-round education, even though compressed into a six-month period, is a real opportunity for the illiterate agricultural laborers of southern Italy. It means an amount of mental discipline and a general background of information which is unknown in the small hamlets from which they come. Many of these hamlets are so remote and primitive that the

feeling of national unity has not really penetrated to them, and the promoters of the schools feel that, aside from special help to cripples, they are of real use in national development.

LOCAL COMMITTEES

Each school is under the direction of a volunteer local committee, called a *Comitato di Assistenza*, which must work in close touch with the National Board. The work of this committee includes founding the school and arousing public interest in it, attending to the practical direction with help in discipline from the War Department, raising funds to aid in its support, since the 3.50 lire a day paid for each man by the government does not cover expenses, and placing the men when they leave. This means that a great deal is still expected of private initiative. The National Board is, of course, expected to be of great support to the committees and to stimulate their formation in the still large areas where none exist.

To November, 1917, there were twenty-six committees, at Alessandria, Ancona, Bari, Bologna, two at Florence, Genoa, Lecce, Leghorn, Milan, Modena, Naples, Padua, Palermo, Parma, Pavia, Perugia, Pescia, Pisa, Ravenna, Rome, Spezia, Turin, Venice, Verona, Voghera.¹ Distributed by provinces, this makes: Piedmont, two; Lombardy, three; Venetia, three; Liguria, two; Emilia, three; Tuscany, four; Marches, one; Rome, two; Perugia, one; Umbria, one; Abruzzi, none; Campania, one; Basilicata, none; Apulia, two; Calabria, none; Sicily, one. It will be seen that the committees become much fewer as we go toward the south, which begins with the province of Abruzzi. Three of the southern provinces have no committees at all. The organization of the whole country is still in process. The National Board expects greatly to stimulate the formation of committees in localities where public opinion is slow. It is empowered to call on the mayors of towns or to send out its own representatives where no one else takes the initiative.

Not all the committees reported above have schools in operation, though that is the ultimate

¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 297.

object of all of them. At the Inter-Allied Conference, May 8, 1917, the schools reported by Italy were twenty-one: including two Red Cross schools and a farm institute at Perugia. The schools are at Rome (two), Perugia, Naples, Palermo, Florence, Leghorn, Pisa, Pescia, Spezia, Bologna, Genoa, Parma, Turin, Milan, Venice, Verona, Vincenzo, Treviso, Udine, Padua (the last five allied with Venice).²

The schools are not all of equal importance, some of them being very new and incompletely equipped. The five mentioned by Professor Levi in the *Bollettino* as being the largest are those at Milan, Bologna, Florence, Rome, and Palermo.³ All these five institutions include an orthopedic hospital under the same direction as the re-education school and men proceed in a regular course from one to the other. The hospital on the Quirinal at Rome, under the personal patronage of Queen Elena, the Red Cross institution, *Istituto Romiti* at Spezia, and the Turin school under the Piedmontese committee all have the same arrangement. Some of the smaller schools have no orthopedic department but merely take men for re-education after their treatment at the orthopedic hospital has been completed. The Milan school is the most extensive as well as the oldest. It is the type toward which all the others are developing and may be described here as a model.

MILAN SCHOOL

The institution accommodates altogether 1,210. It is divided into four sections, a distribution station, accommodating 400; an orthopedic hospital, for 60; an elementary and business school, 150; and a trade school, 500. The first three are in the city of Milan, the trade school is in the suburb of Gorla.

Men are received from the field hospitals at the distribution station which ranks as part of the orthopedic military reserve hospital. Here they have the necessary surgical treatment and are sorted out, those belonging to other districts

² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 131-133.

³ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 112.

being sent to their own army corps, those who need intensive orthopedic treatment to the orthopedic section and those ready for re-education to one or other of the school sections. Men are supplied here with temporary prostheses and return for their permanent ones. The orthopedic hospital is housed in a section of the *Istituto dei Rachitici* (Institute for Rachitics). It is furnished with elaborate modern devices for mecano-therapy and with Amar's apparatus for measuring muscular efficiency. The men are kept here for medico-mechanical treatment and for functional re-education.

The elementary and business schools are housed in the Marcelline convent next door to the Institute for Rachitics, the Marcelline sisters giving their services for the care of the house and food. All men who wish to take training are sent first to the elementary school unless they can prove that they have a satisfactory elementary education. The elementary school comprises four courses, of two months each, corresponding to the first four grades in night school. Each course, taking a man's full time, is expected to cover as much ground as a year's course in night school. On entering the elementary school men are carefully examined by the teacher and assigned to the course which they are fitted to take. They are then promoted in regular order until they have finished the fourth grade and are ready for trade or business training. Re-education in this school is not strictly subsequent to orthopedic treatment, since most men get through with the first two courses while they are waiting at the distribution station for their prostheses.⁴ After a man has finished the elementary courses it is decided whether he is fitted for a trade or for the business course and he is sent accordingly to the trade school at Gorla or to the business school in the same building. The business school, for purposes of convenience, is held in the same building as the elementary school. It consists of four courses. The first is a general cultural course including Italian, arithmetic, writing, geography, and French. From it men are graduated to the business course proper

which carries the cultural course further and takes up bookkeeping and stenography. Men unfitted for further education are sent from it to such simple business positions as concierge, store clerk, etc. Men capable of going further are promoted to the commercial course which teaches bookkeeping, stenography, business letter writing, geography and Italian. There is also a course for postal and telegraph employees, these functions being both under the government in Italy. Men supplement their work in this course by practice in the government school of telegraphy in Milan.

The trade school is situated in the suburbs of Milan. It has become so popular that it has had to be twice enlarged and now accommodates 500. It is equipped with Amar testing machines to help in deciding a man's capacity for a trade and with ten workshops. These teach carpentry, tailoring, shoemaking, basketry, leather work, wood inlay and wood carving, the making of wooden shoes, saddlery, broom and brush making, mechanics. Diplomas in these subjects are given to pupils after an examination by experts.⁵

The *Officina Nazionale di Protesi* (National Workshop for Prostheses), mentioned above, is attached to this school though it furnishes the prostheses not only for the school, but for other Italian institutions.

The trade courses taught at Milan are in general those of the other institutions. Italy is particularly fortunate in having a great many famous handicrafts which still fetch high pay and are well adapted to cripples. Many schools, for instance, have a course in bookbinding, which has reached great artistic perfection in Italy. Florence is famed for its manufacture of toys and Venice teaches the old Venetian arts of wrought iron and stamped leather.⁶ For men with some education the most popular course is telegraphy. The Minister of Post and Telegraph is particularly interested in re-education and has promised to do everything possible toward placing crip-

⁴ *Comitato Lombardo per i Soldati Mutilati in Guerra*. Milano. *Milano e la Lombardia per i soldati mutilati in guerra*. Relazione . . . March, 1917, 20.

⁵ *Comitato Lombardo per i Soldati Mutilati in Guerra*. Milano. *Milano e la Lombardia per i soldati mutilati in guerra*. Relazione . . . March, 1917, 35.

⁶ *Scarpellon, Giuseppe*. *Per l'assistenza ai mutilati in guerra*. *L'Opera del Comitato Provinciale di Venezia*, p. 8.

ples. Most of the reports of school graduations mention four telegraphers to one manual worker. School directors have had to warn strenuously against too much enthusiasm in this particular line for which many men are not fitted and where they cannot all be accommodated.

AGRICULTURE

The subject which in Italy requires the most earnest attention and which is only beginning to be considered is agriculture. Eighty per cent. of the whole population, ninety per cent. in Sicily, come from agricultural occupations. Critics of the re-educational work have pointed out that the system of trade education which was started by Milan, an industrial center, is of no value or of positive harm to the southern districts where there is only the most primitive form of industry. The trades of tailoring or shoemaking can be used to a certain extent, but even these are not greatly in demand in simple villages where the population goes barefoot and rarely affords new clothes. On the other hand, there is the most crying need for better agricultural methods and wider education among the peasants. The present is a real opportunity for breaking down some of that ancient peasant conservatism which has kept the farming methods of much of the country in a mediæval condition and prevented it from reaching its highest productiveness.

This is beginning to be realized by a few of the schools and there is an ardent propaganda to spread the idea further. At present there are agricultural courses in only five schools, Perugia, Palermo, Spezia, Turin, and Padua. Spezia has a garden course run in connection with the regular trade courses. Perugia and Padua are small schools particularly for farm work. At Turin and Palermo there is a special section of the school in a separate building devoted to scientific agricultural course.⁷ Palermo was the pioneer in this line and is the school which has excited the most notice and commendation.

PALERMO SCHOOL

The Palermo school has a hospital section in the city of Palermo for orthopedic treatment and

⁷ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Soldati Ciechi, Mutilati, Storpi.* Rome, 1917, ii, 131-133.

re-education and a trade school in the suburbs with twelve shops, accommodating 250. At this trade school there was a small amount of garden land and a farm course was started. The course grew until now eight additional hectares have been purchased. The school teaches gardening, farming, bee keeping, poultry raising, and basketry, the last to furnish a little additional income for peasant farmers during their idle months. The main value of this course has been in introducing modern agricultural methods, the use of machinery, the prevention of pests, the knowledge of new crops, among very conservative and ignorant peasants. The school garden, where many new vegetables unknown to the island are grown, is an exhibition place visited by the farmers for miles around. The school tomatoes were kept free from *Phytophthora infestans* in a year when all the others in the district suffered. This makes excellent propaganda for the school and means a great educational advantage to Sicily.⁸

On account of its good work the Palermo school has been voted a subsidy of 50,000 lire by the *Federazione* and later a second one of 75,000. The *Camera Agrumeria*, Chamber of Agriculture, of Messina has also voted it a subsidy.⁹

The Federation was so impressed with the demonstration made by Palermo of the usefulness of agricultural instruction for cripples that it voted a subsidy of 50,000 lire to any other school which would establish ¹⁰ an adequate agricultural course. The Turin school is also doing excellent work through the *Istituto Bonafous*, an agricultural school outside Turin where farm pupils are sent at the school's expense. The subject is arousing more and more enthusiasm and it is hoped that the trend of re-education will now set away from the ill-advised teaching of trades and include more and more farm courses.

⁸ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, ii, 165-175.

⁹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, ii, 242.

¹⁰ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati.* Rome, 1917, ii, 187.

V. Placement

The question of securing positions for crippled soldiers is one which is only beginning to be systematized. The early reports of the committees of assistance always mentioned placement as one of the functions of the committee, but there were no actual arrangements for carrying it out. When the schools were first established the only trades taught were the simple ones of tailor, shoemaker, etc., which a peasant could carry on in his own house at home. Men were sent back to their home villages, sometimes supplied with tools by the committee and expected to set up in business for themselves. With the duration of the war there has been more discussion on this subject, and it is realized that the problem of maintaining the stability of industry is a very serious one and one which the schools should study scientifically.

There is no set rule, as there is in Germany, that a man should be re-educated to his old trade or an allied one. If this were actually carried out, almost all the cripples would be educated as farmers. The statement made in the law creating the National Board, a statement expressive of theory rather than practice is: "Men should be educated preferably to their old occupation, agricultural or industrial, or to a new one suited to their tastes and to their social and economic condition and to the labor conditions of the locality where they reside."¹

Italian critics of the work have pointed out that this ideal has so far not been carried out and that schools have taught the two or three trades easiest to install without regard to the demand for them or their suitability to the cripples' tastes.²

NATIONAL FEDERATION

The National Federation had almost from the first an employment office whose function was to assist the committees in placing their discharged pupils. This office made inquiry among large firms in the country as to their willingness and

ability to employ cripples and was able to publish in its monthly magazine the names of several, notably the *Associazione Elettrotecnica* (Electro-Technical Association), with the positions which they can offer to cripples and the injuries compatible with them.³

Others taking cripples at the request of the National Federation are the *Società italiana per la fabbricazione di prodotti azotati di Piano d'Orte* (Italian Society for the manufacture of Nitrogen Products at Piano d'Orte), the Firm of Solvay and Co., at Rosignano,⁴ and the *Stabilimento Aeronautico di Roma* (Aeronautical Factory at Rome).⁵

The employment office of the National Federation keeps up a continual campaign of publicity to interest public officers and private employers in the subject of employment of cripples.

LOCAL COMMITTEES

In addition to this, almost all the local committees have developed employment bureaus. Those at Florence and Turin are particularly active. The employment committee at Florence, composed of doctors and employment experts interviews all men before they leave the hospital and makes out a card containing the necessary social information, after which it makes an effort to get them really appropriate work.⁶ The Turin school has within the building an employment office for crippled soldiers in charge of an expert and also uses a carefully worked out blank in taking applications.⁷

There have also been organized in many of the Italian provinces volunteer *Comitati di Mobilitazione Industriale* (Committees for Industrial Mobilization) under a Central National Com-

¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 246.

² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 39.

³ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 163.

⁴ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 144-145.

⁵ *Comitato delle Province Piemontese per l'Assistenza ai Lavoratori Mutilati in Guerra*. Torino. *Relazione* . . . p. 12, and blank *Collocamento Mutilati*.

¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 67.

² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 225.

mittee. This committee makes it its particular business to look up the firms which will employ cripples and publish the results.⁸ The local committee for Lombardy publishes a tabularized statement every month in the monthly magazine of the Federation⁹ and the National Committee also has a report.¹⁰

GOVERNMENT MEASURES

The agency to which all the others look for help in the matter of placement is, of course, the state. As stated above, the law creating the Federal Board requires all public offices and private firms to re-instate their former employees who have become war cripples and makes certain provisions for facilitating civil service to war cripples. This is, of course, a recent enactment which had not properly been put into effect, but even before it government bodies were very active in procuring employment for war cripples.

Italy had, perhaps, more difficulty than other countries in combating the usual conviction of the war cripple that he was entitled to a government post. She was situated something like the United States, having had a popular war at about the same time (1861), after which the principle of liberal treatment and government jobs for pensioners became well established. Many of the heroes of the war of the *Risorgimento* were supplied with sinecure posts which they were unfitted to fill and the general presupposition at the beginning of the present war was that all veterans must be treated in the same way. The Minister of Post and Telegraph was very cooperative from the first and promised to employ as many of the school graduates as possible,¹¹ but it was recognized that this offer must be used in moderation since so many of the cripples are illiterate and incapable of training as telegraphers. Men are still being educated in

large numbers for this occupation¹² and the requirements have been lowered for war cripples, but there is an effort to turn the schools to other lines of training.

There are also material changes in the civil service rulings in order to accommodate cripples. There is annexed to the vice-royal decree of August, 1917, supplementing the law creating the National Board, a list of positions in all governmental departments which will be held open for cripples.¹³

The sale of salt and tobacco is in Italy a government monopoly. It is generally conducted by the postmaster, but licenses may be given to private individuals. There is a *Commissione centrale per il conferimento delle rivendite di generi di privativa* (Central Commission for conferring the right of sale of state monopolies) which confers this license on cripples if they present proper references and are pronounced by a competent authority unfit for productive labor.¹⁴

The Ministry of Munitions has for some time been urging the munitions factories to employ cripples as a patriotic duty and has finally requested them to submit to him on the 25th of each month a list of the positions open in all factories and the injuries compatible with them.¹⁵

The law creating the National Board also provides that discharged men may be employed in army work behind the lines. The Military Aviation Department has promised to give preference to cripples, preferably trained smiths, mechanics, metal workers, carpenters, etc., to substitute for able-bodied men who may then be sent to the front. The pay is to be without regard to pension.¹⁶

⁸ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 245.

⁹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 211-213.

¹⁰ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 120.

¹¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 120, 303.

¹² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 119.

⁸ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 332.

⁹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 334.

¹⁰ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 335.

¹¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 245.

WAGES OF CRIPPLES

The question of reduction of wages caused by the employment of cripples seems not to have come up. The government has repeatedly promised that pensions shall not be reduced no matter what a man's earning capacity becomes,¹⁷ but this is the only phase of the subject which has been mentioned in the publications.

Insurance is a subject which has roused more discussion. The provisions under this head have been stated in the law creating the National Board. The final result is that in matters of accident insurance no account is to be taken of the employment of cripples unless their number passes a certain proportion—when an agreement is to be reached with the Minister of Industry.

CREDIT

Since Italy is not primarily an industrial country, the possibility of loans to farmers and handicraft workers assumes almost as much importance as that of placing men in trades. The law creating the National Board provides at length for this sort of aid. Loans for buying land or establishing themselves in business may be made to crippled soldiers on security of their pensions by loan institutions authorized by the state.¹⁸ Every effort is made to facilitate credit to the cripple and the local committee and the National Board make it their business to assist him.

VI. Public Relation

PENSIONS

Italian pensions are computed according to a vice-royal decree of May 20, 1917, amplifying a law of Parliament of May 22, 1915. By this decree there are established ten categories of invalidity, and all injuries are classified as falling under one of them. A minimum pension is established for men of every rank, and this is augmented according to the category of in-

validity. For a private, the maximum is 1,260 lire or \$252 per year.¹ For total cripples falling within the first category there is a supplementary allowance of 150 lire, \$30 per year. This can be withdrawn if a man is being provided for by private charity or if he refuses re-education and withdrawal is recommended by the National Board.² On a man's discharge from the army, pensions are fixed once for all and the Minister of the Interior has declared definitely that there will be no diminution of pensions under any circumstances.³

PUBLICITY

The subject of re-education is still in great need of publicity in Italy. Professor Levi, in the monthly magazine of the Federation, states that, for the first years of the war, the rule was, the cripples were discharged to their homes without knowing anything about re-education. In a short personal survey which he made in Piedmont, the sphere of activity of one of the most efficient committees, he found men in all the mountain villages who were perfectly capable of re-education and were living in idleness for lack of it.⁴

FEDERATION

This lack is being overcome little by little. The National Federation, in its money-raising campaigns, has done a great deal to advertise the work of the committees. A great many post cards have been printed for sale. Its largest returns, however, came from the sale of a box of matches decorated with the Italian colors and named the *Scatola Italianissima*, a superlative which might be translated the 'All-Italian match box'. This box was manufactured by several regular factories and sold at a price a little above

¹ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 152-158.

² *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 153.

³ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 37.

⁴ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 106.

¹⁷ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 97.

¹⁸ *Bollettino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 210.

the usual one, the surplus going to the work for cripples. A campaign of publicity made it a public duty to buy matches in this form and the box was sold by thousands, carrying with it a widespread knowledge of the name of the Federation, if not of its work. The real work of publicity done by the Federation is the publication of a monthly magazine of high excellence, the *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati* (Bulletin of the National Federation of Committees of Assistance to Blind, Lame and Maimed Soldiers), Rome. This magazine has done a great deal for the information of the educated classes of Italy. It was highly praised at the Inter-Allied conference, the French representatives declaring that it should serve as a model for their contemplated publication. Besides theoretic discussion and reports of the work of local committees, the *Bolletino* publishes lists of positions open to cripples and acts as an employment medium.

LOCAL COMMITTEES

The only one of the local committees which has made much of a point of publicity is the Piedmontese Committee at Turin. This committee has issued posters urging men to attend the farm school and a booklet for cripples telling the story of re-education (*Tre Anni Dopo*, Turin, 1916). It has also sent representatives through the province to lecture and interest local people.⁵

RED CROSS

The Italian Red Cross has assisted a great deal in publicity. It has included in its nursing course a series of lectures on the care of cripples, including the care of the stump and re-education.⁶ It has also instructed its representatives whenever they visit hospitals or confer with soldiers to inform them about the possibility of re-education and the fact that it does not mean loss of pension.⁷

⁵ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 325.

⁶ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 161.

⁷ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 72-73.

The newly created National Board, with its greater powers, will probably be able to remedy this lack of popular information on the subject.

ATTITUDE OF CRIPPLES

It has been hard to convince the Italian cripples of the value of re-education. At Bologna, twenty-eight per cent. of the men eligible refused it.⁸ The conservative peasant mind is hard to appeal to. The best method would seem to be that of Dr. Aliotta of Palermo, who approached his men while they were still in hospital and convinced them by long personal conferences in dialect that they would be in friendly surroundings and would enjoy the school. When they are in school, military discipline is agreed to be the only plan workable.⁹ Even thus men are sometimes expelled for infringement of rules, at Bologna, twelve in a year.¹⁰ The idea of re-education is too new for men to be willing to stick to it the length of time necessary without some external authority.

NATIONAL ASSOCIATION

In Italy, as in Germany, the cripples have formed a society of their own, the *Associazione Nazionale degli Invalidi della Guerra* (National Association of War Cripples) with headquarters at Milan. The aims of the association are stated to be

1. To foster the spirit of brotherhood.
2. To give mutual assistance, moral and material.
3. To act as intermediary between cripples and employers.
4. To maintain the rights of cripples when they are neglected, whether by the government or by the public.
5. To secure work for its members.¹¹

⁸ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 115.

⁹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 57.

¹⁰ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 115.

¹¹ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, II, 161.

This society would not seem to be a working class organization, as in Germany. Its honorary officers have high army rank and even the actual executives include captains, etc. The association has evidently real influence with the public. When the bill creating the National Board was being discussed, a clause providing for representatives of the cripples on the Board was struck out, but later when the supplementary rules were issued in a vice-royal decree, the Prime Minister was directed to appoint four such representatives. Cripples are also to be represented on the staffs of all the re-education schools, the men being elected by the local branch of the National Association of War Cripples.

There would seem to be already a good many branches of the association which are active in promoting propaganda for the employment of war cripples. The Genoa branch has proposed to the Ministry of War that cripples be employed in all war department positions possible so as to release able-bodied men for the front.¹²

The aims of the association as far as expressed are absolutely non-political. At its meeting of organization the secretary summed up the general feeling: "Our country will be grateful for the strength we have given in defense of her glory and of her spirit. But we shall be even more worthy of her if, united in a firm organization, we regain the strength and the will to be real men, useful to ourselves and to our families. The eyes of all are turned toward us as toward the elect, and this high consideration should guide us to right conduct and straight living. The association will be the kindly guardian of every member, but it will not hesitate to take stern but necessary measures against those who fail of their civic duty."¹³

¹² *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 330.

¹³ *Bolletino della Federazione Nazionale dei Comitati di Assistenza ai Militari Ciechi, Storpi, Mutilati*. Rome, 1917, ii, 218.

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Provision for War Cripples in Germany

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Provision for War Cripples in Germany

I. INTRODUCTION

There are two outstanding features about the German system of care for war cripples. In the first place, it is not a system in the sense in which Italy, Canada, France, and England have systems. In all these countries, the work is more or less unified under one authority; they make, in varying degrees, an attempt at even distribution of schools and hospitals. In Germany, there is no real central authority, the schools are of varying types and most unevenly distributed.

The second feature is the volunteer character of the work. The matter of re-education is wholly in private hands and is not even supervised by the Imperial Government. In this respect, the German Government takes less part in the work than the government of any other nation. These two features, lack of system and lack of government control, have been the subject of wholesale condemnation from writers of other nations. As far as can be seen, however, the volume of work done and the efficiency of individual institutions rank extremely high.

As a matter of fact, the lack of centralization in the German system need not indicate essential insufficiency. There are two obvious causes for it. In the first place, Germany was the country which, of all others, had, when the war broke out, the most foundation for caring for cripples. Some of the other countries which had no such arrangements, had to create their systems from the bottom up, notably Italy and Canada, which are now the most uniform. It is the work which has grown by experiment from stage to stage which usually shows the least consistent plan on paper, and the German re-education system appears to fall under this head.

When the war broke out, Germany had, under different auspices, all the elements with which to begin immediate work. There were fifty-eight

cripple homes under private auspices; there were sanatoria and re-education workshops for industrial cripples under the employers' accident insurance companies; there were orthopedic hospitals under the municipalities, and there were trade schools and employment bureaus under various government auspices. It was difficult to knock these elements together under one management and yet each was efficient of its kind and ready to be turned over at full working strength to the purpose of war. Under such circumstances, the natural development was that each should remain more or less autonomous, simply co-operating with the others on whatever system appeared practical in each locality.

Further than this, the work is thoroughly planned. It is not what is done for the cripples which is unsystematized, but the way in which it is done. Germany has a complete definite scheme as to what constitutes the reconstruction of war cripples. It is accepted by all the institutions working to this end, it is put in practice, and the statement is that in ninety per cent. of the cases the desired results are obtained. The scheme, as expressed by Dr. Biesalski, Germany's leading orthopedic surgeon, is as follows:

1. No charity, but work for the war cripple.
2. Cripples must be returned to their homes and their old conditions; as far as possible, to their old work.
3. Cripples must be distributed among the mass of the people as though nothing had happened.
4. There is no such thing as being crippled, while there exists the iron will to overcome the handicap.
5. There must be the fullest publicity on this subject, first of all among the cripples themselves.¹

These words express not only an ideal, but an outline of the work as actually put through.

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 15.

There appears to be no discussion in Germany as to the results obtainable. The principle that no one need be a cripple unless he himself wishes it, and that 'the wounded man must sink back into the mass of the people as though nothing had happened', is accepted as a creed. As far as this goes, there is entire uniformity and system, with less discussion of possibilities and results than is to be found in any other nation.

The volunteer character of the work is also explainable on historical grounds. Volunteer work in Germany does not mean unskilled work. Germany was used to relying on private organizations for efficient work in the field of social welfare and to granting them a semi-official status. Her whole system of social insurance, for instance, was managed in this way. Moreover, her volunteer social workers were often men who held government positions and who did this work in their unofficial capacity or who were closely allied with the governing class. To speak of volunteer work in Germany does not, therefore, mean irresponsible or untrained work, but work in the spirit and of the quality of government work done under different auspices. To illustrate the German attitude, there may be quoted the speech of the president of the Imperial Committee for the Care of War Cripples, made at a conference called by the committee at Cologne, August 22 to 25, 1916:

To me the most inspiring thing about this organization of ours for the care of war cripples, which embraces all Germany, has always been its voluntary character. We needed no laws and no decrees, no impulse from our rulers. Spontaneously, in one day, the great edifice sprang from the earth created by the mighty force of brotherly, cherishing love.²

The enthusiasm of this speech is typical, but the man who makes it cannot be counted merely an inspired private citizen; he is the Captain General of the Prussian Province of Brandenburg and, though speaking in a private capacity, must be presumed to work in full accord with the government and in the government spirit.

It is gathered that the work for cripples, being managed usually by people of this stamp, is

largely a matter of class. There have been requests in the Reichstag, mostly from the socialist side, that the government take over the whole work. The government's obvious reason for not doing so is, of course, a matter of money coupled with the fact that to leave such a matter to private initiative is not such a shiftless act in Germany as it would be in a country with a less developed system of private charity. A list of contributions made by some of the principal German cities to June, 1916, may show the extent to which the work is dependent on private charity:

<i>City</i>	<i>Marks</i>	<i>Marks per 1,000 inhabitants</i>
Cologne	707,000	1,367
Berlin	570,000	275
Düsseldorf	430,000	1,170
Wiesbaden	142,000	1,299
Leipzig	140,000	237
Potsdam	66,000	1,064

ACTUAL PROGRAM OF WORK

There have been various estimates made of the number of German cripples. The latest available is that up to August, 1916, published by the *Kölnische Volkszeitung*, which gives³ the arm amputation cases as 6,000 and leg amputations as 10,000.

For these men there are four necessary stages of treatment: (1) medical treatment, (2) provision of artificial limbs and functional re-education, (3) vocational re-education and vocational advice, (4) placement. These activities are cut sharply in half, the first two being the function of the Imperial Government and the last two of private and state agencies.

The general course of a wounded German soldier from the battlefield to civil life is as follows: He receives his first treatment at the field dressing station and goes from there by ambulance to the field hospital, where surgical treatment takes place. He is then removed by train to the rear, possibly to a hospital along the lines of communication, possibly to a reserve hospital in the interior or even to the orthopedic hospital, where he is to have final intensive treatment. This is decided by military convenience and by his need for more or less immediate treatment.

² *Verhandlungsbericht über die Tagung für Kriegsbeschädigten-fürsorge in Köln*. Berlin, 1917, p. 27. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

³ *Zeitschrift für Krüppelfürsorge*. Leipzig, 1916, ix, 382.

He is kept at the reserve or the orthopedic hospital under military discipline until his physical condition is brought back to normal, during which time there are various arrangements for his re-education. These will be taken up later. On discharge from the hospital, he goes back to his reserve battalion, the unit at the rear which supplies new reserves for the corresponding battalion at the front, to await his pension and dismissal. As a rule, there is an effort to send men for treatment to the home town where their reserve battalion is quartered, so that this will not mean another change of place. While he is with the reserve battalion, his pension is decided on by the local military board and he is finally dismissed as *dienstunfähig*, or unfit for service.

Most of the civilian activities, both in re-education and in placement, take place while the man is under the authority of hospital or reserve battalion. This makes necessary the closest co-operation between military and civilian authorities. The effect is that of two interlocking systems functioning side by side, occasionally overlapping, occasionally failing to make perfect connections, but, as a rule because they are not really different in spirit, managing very effectively.

II. ORGANIZATION

The organization of the volunteer work for the care of war cripples began a few days after the declaration of war, through the activity of the *Deutsche Vereinigung für Krüppelfürsorge* (German Federation for the Care of Cripples). This society, as has been mentioned, is an institution of long standing, having as members fifty-eight cripple homes, some of them founded almost a century ago. The chief mover in the organization was Dr. Konrad Biesalski, director of the *Oscar-Helene Heim für Heilung und Erziehung Gebrechlicher Kinder* (Oscar Helen Home for Treatment and Education of Crippled Children) in Berlin-Zehlendorf. Immediately after the outbreak of the war, the Kaiserin, at Dr. Biesalski's suggestion, sent a telegram to the *Vereinigung für Krüppelfürsorge*, asking that the German cripple homes throw open their doors to war cripples. To this, all the homes immediately consented. Further than this, Dr. Biesalski

undertook a tour of Germany under the auspices of the Red Cross, in which he visited all the principal cities, urging the formation of voluntary committees for the care of war cripples. The gospel he preached was one which had been the creed of leading German orthopedists for many years, namely, that almost any cripple could be made fit to work again and that education for work should be the regular treatment. The immediate result was the formation of volunteer committees in many cities and of larger ones in some states and provinces and the starting of work in all parts of the empire under various auspices and with various plans. By February, 1915, this local organization had proceeded so far that the *Vereinigung für Krüppelfürsorge*, under the auspices of the Kaiserin, called a special meeting in Berlin to compare notes and lay down the guiding principles.

At this meeting, there were present officials of the various states and provinces, representatives of the medical profession, the teachers, the employers, the workmen, the military authorities and, of the large social welfare organizations, the Red Cross, the sick benefit societies, the state accident insurance associations, etc. The general principle was laid down as above, that the Imperial Government, through the War Department, should be responsible for the wounded soldier in so far as he required physical care, but that all responsibility for re-education and return to industrial life should belong to private charity or to the different states of the empire, if they cared to take it up. Dr. Schwiening, staff surgeon of the *Gardekorps*, in laying down the position of the military authorities, said: "The aim of the military authorities is to restore to the wounded man, as fully as possible, the use of his injured or weakened limbs. . . . Our purpose is not only that men should have the requisite practice in the use of their prostheses and should then be discharged. The military authorities are prepared to keep them even longer under care and give them opportunities in special hospitals for further practice and in preparation for a trade. . . . Naturally, for various reasons, it is not possible to keep all wounded and crippled men in hospitals until they have fully learned a new trade or are able to resume

their old one. But to give them the preliminary practice for this, and thus to smoothe the transition into civil life, to this the military authorities consider themselves indubitably bound."¹

This left the division of labor clear. Dr. Schwiening's allusions to 'opportunities for further practice' turned out to mean nothing more than cordial intentions and a little manual training in the way of functional re-education. The private agencies represented at the meeting, therefore, prepared to leave to the War Department all questions of physical care and to concentrate on vocational advice, re-education, and placement. The question of financial responsibility was touched on, but not settled. There was no authority from the Imperial Government for assuming that any expenses would be defrayed, except those for physical care. The private societies and the individual states were left to finance their part of the work with any support they could get. There was obvious, even at this early meeting, the split of opinion as to this division of responsibility. Several speakers stated definitely that the Imperial Government ought to control and plan the work or, at least, to finance it. No government representative, however, had been authorized to make any promises on this subject and the aloof attitude then assumed has continued, under growing criticism. The general understanding, however, was a thoroughly cordial one. The military authorities expressed themselves as deeply grateful for the volunteer work and in full cooperation with it. They promised to consult with the private agencies as to the assignment of men to different hospitals and not to remove or discharge men suddenly without regard to the interests of their training. They also promised that private agencies should have facilities for visiting the hospitals for teaching and vocational advice and that army doctors should be instructed to cooperate with them in every way.

As a matter of fact, the actual working out of this cooperation depends on the *Bezirkskommando* (the local military authority) in any given place. For military purposes, Germany is divided into thirty-two districts, all the hospitals in any district being under the authority of the

commander of the local army corps. It is in this man's power to facilitate private work or to make it difficult, and, since most of the younger and more progressive men are at the front, the army commander is sometimes a man with little appreciation of the cripples' wider needs.

There has, at times, been friction between individual military commanders and the volunteer agencies in their districts. The War Department is fully awake to the harmful effects of this state of affairs and, on December 27, 1916, issued the following decree² looking to more complete cooperation:

The problems of vocational advice, re-education and placement can be solved by the military authorities only by constant and systematic cooperation with the civilian agencies for the care of war cripples. It should, therefore, not be left to the discretion of the local military hospital authorities, whether vocational advisers should be permitted in the hospitals or not; there should be a regular understanding on this point with the central care committee. . . . The military authority must accord every possible support to the upbuilding and the intensive growth of the civilian cripple work because, after demobilization, the further social care of our war cripples will fall entirely on these civilian agencies. In preparation for that time, these agencies must be placed in a position to discharge their heavy task with the greatest possible success.

The organization of the volunteer work, as reported at the Berlin meeting, varied greatly with the different parts of the empire. Germany is divided into twenty-six states, the largest of which, Prussia, has twelve provinces, each larger than many of the other states. Roughly, it may be said that the eastern part of the empire is the more sparsely settled agricultural section and the western the populous industrial section. The degree of development of schools, hospitals and institutions for social welfare differs according to the character of the individual states and according to their location.

Though the Imperial Government had taken no part whatever in the organization of re-education work, the governments of the various German states and of the Prussian provinces had

² *Leitsätze über Berufsberatung und Berufsausbildung*. Berlin, 1917, p. 20. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 2.)

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 146.

sometimes assumed responsibility. The work thus organized falls under three classifications:

1. *Work financed and directed entirely by the state government.*

Bavaria stands alone under this head. The whole work is financed and managed by the state under the Ministry of the Interior, assisted by an advisory committee of representative citizens. The various government officers throughout the state are the officers of the cripple welfare work and each one has an advisory committee of local people to help with the actual case work.

2. *Work initiated and directed by the government but with private cooperation and support.*

Under this head fall all but one of the Prussian provinces, including more than half of Germany. The head of a Prussian province is called the *Landeshauptmann*. In almost every case, the *Landeshauptmann* formed a special care committee with himself at the head, and the local committees all over the province were subordinated to this central authority. The plan was to use, to the full, all existing provincial institutions, such as schools, almshouses, and hospitals. The funds were furnished by the province, but with the understanding that the State of Prussia and, ultimately, the Imperial Government, must take over the burden.³ The City of Berlin assumed the responsibility for its own cripples on the same understanding.⁴ In August, 1917, there was formed a central organization for all Prussia.

3. *Work initiated and financed by private agencies but with government cooperation.*

This is the plan in Saxony, Baden, Württemberg, the Thuringian states, Hesse, Waldeck, and the Prussian province of Hesse Nassau which has joined forces with the last two.⁵ In Württemberg, the Minister of State issued the call for organization but left the actual work to private societies; in Hesse, Hesse Nassau, and Waldeck, the whole organization was volunteer, the state governments taking only the most passive cognizance of it.

In all these divisions of the empire, no matter what the chief authority was, there were local

organizations in almost every town. In these local committees, whether they were the real directors of the work as in Hesse, or only advisory bodies as in Bavaria, the agencies represented were usually the same. They comprised representatives of the municipality, the local *Bezirks-commando* (military district command), the accident insurance associations, the Red Cross, the women's clubs, the employers, and, with varying frequency, the Chamber of Commerce, the Chamber of Trades, the Chamber of Handwork, and the unions. The arrangement was a *Hauptfürsorge* organization (general committee) composed in this way and representing the whole state or province, and under it *Fürsorgestellen* (local offices) in the various towns. In the very small places, individual men would represent the cripple work. By August, 1916, it could be reported that Germany was thoroughly covered with a network of such organizations.⁶ They were, of course, not all of equal efficiency, since the social conditions and the facilities differed greatly in the different states. In Westphalia and the Rhine, which are thickly settled industrial provinces, the arrangements are excellent; in Mecklenburg, which is agricultural and conservative, reports showed very scant progress. The efficiency of the whole organization depends on the enthusiasm and ability of the different individuals concerned in the work. There have been complaints in the papers that the *Fürsorgestelle* in some localities exists only in name or that the local representative is an uneducated person unable to discharge his responsibilities.

PRESENT ORGANIZATION

The unsystematized character of the whole work soon began to present difficulties. The Prussian provinces, having organized their work with a good deal of formality, felt the need of common standards for the whole country and, as early as September, 1915, called a meeting of representatives of the cripple work to discuss a common organization. At this meeting, the *Reichsausschuss* (National Committee) was formed. The committee consists of one repre-

³ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1915, i, 69.

⁴ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 290.

⁵ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 67; 1916, ix, 24. *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1915, i, 69.

⁶ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*, Berlin, 1917, p. 1, 20. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

sentative each from all the states of the empire. The twelve Prussian provinces have only one representative, but they meet beforehand to select him and to agree on their policy. Cooperation of the *Reichsausschuss* with the Imperial Government is secured by the presence of a commissioner appointed by the Ministry of the Interior. . . . The Ministers of the Interior of each of the separate states may also send representatives if they are not otherwise in touch with the work. This makes the *Reichsausschuss* an extremely large body. Its actual work, however, is done by an executive committee consisting of thirteen representatives chosen equally from the north, the middle, and the southern states, and from the City of Berlin. Its president is Dr. von Winterfeldt, *Landeshauptmann* of Brandenburg.

The duty of the *Reichsausschuss* is to co-ordinate the work of the various organizations and to make investigations and plans for future work. It has published sets of guiding principles for vocational advice, re-education and land settlement and for the general work of the local committees. All doubtful matters and questions of policy are referred to it. It has sub-committees to investigate and report plans in the following fields: Legal action, cooperation of local committees, finance, publicity, statistics, medical treatment, vocational advice and re-education, placement, land settlement and housing, families of war cripples.⁷ It also is the medium through which any funds contributed by the Imperial Government are distributed. So far, these have consisted only in one grant of five million marks which is almost negligible compared with what the private organizations are spending.⁸

III. MEDICAL TREATMENT

The responsibility for medical treatment, as stated above, is exclusively the province of the Imperial Government, as represented by the War Department. All hospitals where wounded soldiers are treated, whether for first surgical care or later convalescent care, are under mili-

tary authority and discipline. These hospitals fall into two divisions, not according to function, but according to management.

The first type is that called *Reservelazarett*, *Festungslazarett* or *Garnisonlazarett* (reserve hospital). In these the staff are all regular army men or civilians recently elevated to army rank, and the hospital is financed by the war office and devoted entirely to the care of wounded soldiers.¹ The second is called *Vereinslazarett* (affiliated hospital). These are private hospitals which have put at the disposal of the War Department sometimes their whole plant and sometimes merely a certain number of beds. In such cases, the hospital continues to manage its own finances and is under the direction of its regular staff, but the War Department puts in a representative who is responsible for the discipline of the soldiers received. The Department may also assign army men to act as teachers at their regular army pay, and a good many crippled officers and non-commissioned officers are employed in this way.

There is an informal understanding between the military authorities and the *Vereinslazaretten*, which are often specialized orthopedic hospitals and cripple homes, that the department will try to send men to hospitals which are in their home district or which specialize in the treatment of their particular injuries. If the disposition cannot be made at first, the department arranges to transfer men ultimately, so that they will get the benefit of specialized care. The department pays the *Vereinslazaretten* 3.50 marks a day for each wounded soldier received.

There are no reports of the total number of orthopedic hospitals in Germany. Dr. Schwiening, chief medical officer of the *Gardekörps*, Berlin, in February, 1915, made the following statement: "On the tenth day of mobilization, there were about 100,000 beds in the *Reserve* and *Vereinslazaretten* at the disposal of the military authorities and this number doubled in a short time. . . . In countless hospitals, we had, at our disposal, medico-mechanic and other apparatus for physical and hydrotherapeutic cure. We had also military convalescent hospitals and sanatoria for mechano- and hydro-

⁷ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*, Berlin, 1917, p. 21-26. (*Reichsausschuss der Kriegsbeschädigtenfürsorge*. Sonderschriften, Heft 1.)

⁸ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 139.

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 53.

therapy. . . The greatest specialists, if they were not already at the front, were appointed consulting experts at the military hospitals." He gave the following figures as to the number of medico-mechanical institutions at the disposal of the War Department, according to military districts. Each district is designated not geographically, but by the number of the army corps under whose authority it falls.

Gardekörps	Berlin	24
Army Corps No. II		7
Army Corps No. X		15
Army Corps No. VI		21 plus 7 hydro- therapeutic
Army Corps No. XI		8
Army Corps No. VII	Rhein	80
	Westfalen	
Army Corps No. XIV		3
		<hr/> 134

There are places in 107 sanatoria reserved for soldiers.² These figures would seem to apply both to *Reserve* and *Vereinslazaretten* but are obviously not complete, since there are thirty-two army corps districts in the empire.

These *Vereinslazaretten*, temporarily united under government service, are of the most various kinds. Germany had paid a great deal of attention to the care of cripples, even before the war. There had been developed, during fifty years' experience, fifty-four cripple homes, ranging in size from six beds to three hundred. Some of them were already taking adults as well as children; they had among them 221 workshops, teaching fifty-one trades. Dr. Biesalski, secretary of the *Vereinigung für Krüppelfürsorge* gives a list of 138 establishments belonging to the *Vereinigung* and caring for war cripples. Some of these, however, are only out-patient clinics.

Another agency which had promoted the study of the care and training of cripples was the German system of social insurance. Under the insurance laws, there are two agencies responsible for the care of industrial cripples. The *Krankenkassen* (sick-benefit societies) to which employers contribute one-third and employees two-thirds, take charge of a workman for the first twenty-six weeks of illness. After that, the *Berufsgenos-*

schaften (employers' accident insurance associations) support him for the rest of the time, or in case of permanent invalidity. This support means both medical care and sick payments. The medical care may be given either in the patient's home or in a hospital, and the injured man is obliged to accept the kind of treatment offered or forego his privileges.

As a consequence, both *Krankenkassen* and *Berufsgenossenschaften* have excellent hospitals. Particularly the *Berufsgenossenschaften*, which have charge of the men for longer periods and are more concerned with cripples than with mere cases of sickness, have made a special study of the physical and mental training of industrial cripples. Preparing a man to resume his trade was to their advantage, since it relieved them of the necessity of paying him a permanent pension.

At the outbreak of the war, cripple homes, *Krankenkassen*, and *Berufsgenossenschaften* all offered their hospitals to the War Department, as *Vereinslazaretten* and the municipalities offered their hospitals and almshouses. Beside this, the Red Cross established some orthopedic hospitals in localities where there seemed a lack, and private individuals and charitable institutions did the same. The result was a fairly complete network of orthopedic homes distributed all over the empire, to which men could be sent for final intensive treatment. Dr. Leo Mayer, recently of the Orthopedic Hospital Am Urban, Berlin, states that there must be at present about 200 such institutions and that it may confidently be said that Germany's facilities for giving orthopedic treatment to crippled soldiers are quite adequate.

PROCESS OF TREATMENT

The principle upon which the orthopedic treatment proceeds is that practically every cripple can be made fit to work again. This attitude is assumed by all the German writers, in contrast to the French, who make much more conservative estimates. It appears to be a definite public policy to assume as an article of faith that rehabilitation is an absolute success and that discussion is superfluous. Dr. Biesalski states that from ninety per cent. to ninety-five per cent. of all war cripples treated are returned to industrial

² *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 142.

life. Dr. Leo Mayer says that of 400 treated at the hospital Am Urban, only two were unable to go back to work.

The time of treatment for a man in the orthopedic hospital is from two to six months. Men are kept here until they are ready to go back to the army or are pronounced definitely *dienst-unfähig*, unfit for service. Even if they are so unfit, the War Department does not discharge them until they are pronounced by the physician physically fit to go back to civil life. It sometimes happens that a man has a relapse after discharge or that a further, expensive treatment might improve his condition. In this case, the military authorities take no responsibility and private charity must attend to him as a civilian.

FACILITIES

There is great enthusiasm in Germany over the advances made in orthopedic treatment, and it is certain that the best hospitals are excellently equipped. The arrangements at Nürnberg, for instance, include an operating room, a room for making plaster casts, an X-ray machine, hot and cold baths, massage, electric and medico-mechanical treatments of all sorts. To what extent all the hospitals are supplied with modern orthopedic devices cannot be ascertained. There has been some complaint in the papers that the remoter hospitals have very incomplete arrangements and that the great demand for orthopedists leaves some places unsupplied. New short courses for orthopedists have been put in at some of the medical schools and there is an enthusiastic effort to meet the lack; also there is wide publicity on the subject which tends to bring the poorer hospitals up to the standard.

More and more emphasis is being placed on physical exercise as a means of strengthening the stump and also the remaining limbs and of bringing the physical condition back to the standard. The plan is that a man shall begin very simple but systematic physical exercises even before he is out of bed. These are gradually increased until finally he has two or three hours a day under a regular gymnasium instructor. In many places, physical directors from the public schools and universities have volunteered their services and act as part of the regular hos-

pital staff. *Turnvereine*, or athletic clubs for adults, are very common in German towns and these often have a gymnasium or an athletic field which they turn over to the cripples. Most of the larger towns have public parks and swimming pools which they place at the disposal of the hospitals. Games and outdoor sports are found to have an immense therapeutic value, both psychological and physical as compared with medico-mechanical treatment.

At Munich, at the *Königliche Universitäts-Poliklinik* and the *Medico-mechanische Ambulatorium*, 2,000 wounded men receive regular physical training. The *Oscar-Helene Heim*, Berlin-Zehlendorf, reports as part of its regular training for one-armed and one-legged men, ball playing, spear throwing, bowling, shooting, and quoits.³ The sports at Ettlingen include work on parallel bars for one-armed men, and hand ball and jumping for one-legged men, besides regular calisthenic exercises pursued in the open. At the one-armed school at Heidelberg, Dr. Risson reports club swinging for one-legged men, a contest with the horse between the one-armed and one-legged, standing high jump for the one-legged, putting the shot by the one-armed, also ball throwing and hand ball for the latter, the stump being used as well as the good arm. The third army district (Nürnberg) has a similar program. The reserve hospital at Görden, Brandenburg, emphasizes long distance running and takes its men for long hikes in the open in regular running costume. An exhibition contest was recently held at this hospital for the purpose of convincing doctors and social workers all over the country of the possibilities for the cripple in outdoor sports.⁴ Swimming is also being emphasized. In Berlin, cripples have been given free entrance tickets to the public swimming pools. Their swimming is supervised and no one allowed to go into deep water until the instructor is sure of his ability. On a day when forty cripples, mostly with arm and leg injuries, made their first attempt, all of them were able to swim without help. In a swimming *gymkhana* organized later, two legless men competed among the others.⁵

³ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 19-22.

⁴ *Vom Krieg zur Friedensarbeit*, Berlin, 1917, iii, 26-27.

⁵ *Vom Krieg zur Friedensarbeit*, Berlin, 1917, iii, 28.

There is a movement to arouse popular interest in this branch of cripple welfare. The *Deutsche Reichsausschuss für Leibesübungen* has supplied medals at hospital contests.⁶ Local care committees encourage the formation in their districts of permanent athletic clubs for cripples, which tend to keep up their physical condition. Such clubs have been formed in Berlin, Leipzig, Hamburg, Essen, Mannheim, and Kiel.⁷

Trade training, even when given in the hospital, is under civilian auspices and will be discussed later. Many hospitals, however, even when they do not attempt to train a man to a trade, have a workshop or two attached for purposes of functional re-education. In such a case, manual training is counted as part of the medical treatment and is managed by the hospital under military authority, though occasionally, as at Düsseldorf, the care committee of the district sends visiting teachers to help the men with some simple manual occupation before they are able to be out of bed. There is great emphasis, in all reports on the subject, on the fact that even this occupational therapy should be really useful and should lead the patient direct to some practical occupation. There is also some emphasis on the fact that a man should be visited and his mind turned toward work at the earliest possible moment before mental lethargy has any chance to set in.

IV. ARTIFICIAL LIMBS

All artificial limbs are furnished and kept in repair by the government, which also furnishes new ones when necessary.

In distinction from the practice of other countries, the government prescribes no standard pattern. It would appear that each orthopedist selects the limbs for his own patients. The War Department has prescribed certain maximum prices for prostheses of different types, e. g., for amputation of lower arm, of upper arm, lower leg, and upper leg. The Department will not be responsible for prostheses costing more than these standard prices. Otherwise, there is no official supervision exercised, and the matter is left to the doctors and engineers of the country.

⁶ *Vom Krieg zur Friedensarbeit*, Berlin, 1917, iii, 27.

⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 220-225.

The result is an immense stimulation of activity. The magazines are full of descriptions of new prostheses recommended by doctors and manual training teachers from all parts of the country. At an exhibition of artificial limbs, held at Charlottenburg, there were shown thirty kinds of artificial arms and fifty legs in actual use.¹ The *Orthopädische Gesellschaft* (Orthopedic Society) has devoted much discussion to the matter and there has been wide education and publicity.

The principle now thoroughly accepted is that the prosthesis should reproduce not the lost limb, but the lost function. It should not be an imitation arm or leg, but a tool. The standard of merit is the number of activities it makes possible. The prostheses usually supplied to cripples answer this definition. The legs are very like the old-fashioned peg leg; the arms are some variation of jointed rod with an arrangement by which different appliances may be fastened to it. With the arm is supplied a wooden hand covered with a glove which may be attached for street wear. The so-called *Sonntagsarm* (Sunday arm) is never supplied except on request to clerical workers.

The limbs are made by private firms, many of whom sell them at cost price as a patriotic measure. Some of the hospitals have an orthopedic workshop as part of their vocational training equipment, and these make their own limbs or at least prostheses for temporary wear. But there are certain well-known makes of limb which have come into very general use.

LIMBS USED

The Jagenberg Arm. This is the invention of a factory owner at Düsseldorf, where there is a very large school for the wounded. It consists of two metal rods joined by a ball and socket joint which can be turned in any direction, a grip of the well hand sufficing to fix or loosen it. It is fastened to the stump by a tight-fitting leather cuff. With the arm is furnished a set of twenty attachments suitable for all the ordinary operations of life, such as eating, dressing, etc., and a wooden hand for street wear. The number of attachments can be added to at will to suit

¹ *Die Versorgung der Kriegsbeschädigten*. Wien, 1917, p. 10.

any trade. The arm is easily made and its parts can be had at any factory.²

Rota Arm. Made at the Rota Works, Aachen, after designs by the engineer Felix Meyer. Very similar to the Jagenberg arm, it differs in the manner of attaching tools. A set of attachments and an artificial hand is also furnished with this arm.³

Siemens-Schuckert Arm. Made by the Siemens-Schuckert Works, Nürnberg, after designs by Dr. Silberstein, of the Royal Reserve Hospital, Nürnberg. The firm manufactures the arms at cost. This differs from the Jagenberg and Rota arms in having the weight of the arm borne by a strap over the shoulder, while in the two former the weight comes on the stump. The arm has been tried out particularly in the Nürnberg carpentry shops with great success. It has a carefully worked-out set of attachments fitted especially for carpentering.⁴

Riedinger Arm. The invention of Professor Riedinger, Würzburg. It consists of a long leather upper arm and short metal lower arm, with a tube into which attachments can be screwed. It is fastened on by a complicated harness over the shoulder and is particularly good for heavy lifting.⁵

Brandt Arm. The invention of Wilhelm Brandt, Brunswick. This is a celluloid arm with sliding joint, meant for lighter work.

Hanover Arm. Made by the firm of Nicolai, Hanover. Here the ball joint is replaced by a hinge, fastened at any angle by wing screws. This arm has also a set of attachments. It is light and particularly suited to clerical workers.⁶

The two *Schönheits* or *Sonntags* arms (decorative arms) made are the Schüsse arm, Leipzig, and Carnes arm, an American patent purchased by a German firm. The Schüsse arm is a perfect imitation of the human arm, entirely useless and purchased only by wealthy cripples as an extra

prosthesis. The Carnes arm is also an imitation, but with a very complicated mechanism, by which most of the operations of daily life can be managed. The Carnes arm is too expensive and fragile for wide use. A cheap imitation of the Carnes arm has been invented by Professor Bade, Hanover, but is not durable. Even this has not met with wide approval, because the arms made on the tool plan far surpass it in working usefulness.

Two hand prostheses are in wide use, both of them invented by cripples and both on the principle of the claw. The hand best suited to factory workers is that invented by the locksmith Matthias Natius. It consists of an iron claw fastened with straps to the stump. It grasps a tool like a hand and can then be clamped in that position.

The Keller claw was invented by a farmer, August Keller, and consists of three wires the thickness of a lead pencil wound together claw-shape and fastened to the stump by a strap. It grasps tools as does the Natius hand, and its owner has found it entirely successful for all farm operations. It has now been patented and is being widely copied.⁷

The makes of artificial leg have not been so standardized. The general principle on which they are made is that of simple construction and swift repair. Orthopedists have given up the effort to get much foot movement and the usual plan is an unjointed foot with a convex sole. The most noteworthy improvement is that adopted at Freiburg of reducing the weight by making the upper leg of a thin metal rod. The shape of the leg is retained by covering the rod with a wire form covered with elastic. Dr. Alfred Jaks, of Chemnitz, has invented a leg consisting of parallel levers which are set in motion by raising and lowering the stump.⁸

INVESTIGATION AND PUBLICITY

All these prostheses are in use, each one being popular in its own neighborhood or in some

² ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 16.

³ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 16.

⁴ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 16.

⁵ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 16.

⁶ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 17.

⁷ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 18.

⁸ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 17.

⁹ ULBRICH, MARTIN. Die evangelische Kirche und die Kriegsbeschädigten. Gütersloh, 1917, p. 18.

particular trade. In February, 1916, the *Verband Deutscher Ingenieure* (Society of German Engineers) made an attempt to standardize the various efforts. It offered three prizes for the best artificial arm suited to mechanical workers and combining the qualities of lightness, cheapness, and working usefulness. There were eighty-two entries for this contest, sixty of which fulfilled the entrance requirements. The ideal arm was not found and the first prize remained unrewarded, but the second and third prizes went to the Jagenberg and Rota arms described above and small sums were awarded to the various other entries.¹⁰

The prize entries were on view for three months with very good educational results. The Society then decided to establish a permanent *Prüfungsstelle* (test station) for artificial limbs, which was opened at Charlottenburg in February, 1916. The station is a small workshop where about ten cripples who are skilled mechanics can be employed at once and give a thorough working trial to any prosthesis. Up to August, 1916, the station had tried out sixteen arms, three hands and four legs and had had under investigation nineteen arms and five legs. The station has been empowered by the medical department of the *Gardekörps*, the local military authority in the Berlin district, to advise all cripples under its supervision as to prostheses. To August, 1916, 345 cripples had been so advised.¹¹ The Kaiser, from sums placed at his disposal for war relief, has recently turned over 50,000 marks to be used for the purchase and testing of artificial limbs. Twenty thousand of this goes direct to the *Prüfungsstelle* at Charlottenburg.

V. RE-EDUCATION

In the German system, the functions of vocational advice and re-education are closely allied and can hardly be treated separately. They constitute the first half of civilian duties toward war cripples and are managed in combination or separately, according to the locality.

Although vocational advice in fact precedes re-education, it is more convenient, in this study, to take it up second, since its discussion necessi-

tates a knowledge of the re-educational possibilities.

The chief thing to be noted about re-education in Germany is that it goes on at the same time as the medical treatment, the two processes are simultaneous, not consecutive as is largely the case in England. This has two causes: First, there is the strong conviction among all cripple welfare workers that results can be obtained only by getting hold of a patient at the earliest possible moment of convalescence, and second, the fact that, since the Imperial Government does not pay anything toward re-education, it is more economical for the care committees to attend to it while the men are in the hospitals and thus save themselves the expense of maintenance. The usual plan of the care committees, as has been said, is to give men their trade training while they are still in the military hospital, beginning it, in fact, as soon as they are able to be out of bed. Given this plan for the housing of the men, there are two possible arrangements for the workshops. Either the care committee can maintain workshops in the hospitals, or it can use a separate building to which the men are transported every day.

Both these plans are in use, the one adopted depending on the funds and the buildings available to the local care committee. We may allude to them for convenience as the indoor plan, that where the instruction is given in the hospital, and the outdoor plan, where the men are taken out to school.

INDOOR PLAN

There are a certain number of hospitals, like the larger cripple schools, which are already equipped with shops or where it has been possible to build them. In these, a very complete system of trade training is carried out under the hospital roof by civilian instructors. The plan must, of course, have the cooperation of the local *Bezirkskommando* (district commandant) and of the hospital director. In view of the professions made by the War Department, it is the understanding that this will always be forthcoming. Different hospitals have complained of a certain amount of friction, but this is only in details and in individual cases. As a rule, the

¹⁰ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 190.

¹¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 41-42.

military authorities are exceedingly glad to turn over this part of the work, which they are unable to carry.

Since the discipline of the hospital is military, the men can be assigned by the director to different shops to spend a certain number of hours every day. The civilian instructor does not actually force them to work, but the example of other pupils is usually enough for an apathetic man. In a very few hospitals, such as the agricultural school at Kortau, it has been possible to assign crippled officers as instructors and the discipline is entirely military.

NÜRNBERG

The Nürnberg hospital is the most complete example of this plan to hand, though even this hospital, which was fortunate enough to obtain space and equipment for workshops, does not manage the re-education problem exclusively within its own walls, but works in close connection with the city schools.

The Nürnberg hospital has 900 beds. It occupies three new hospital buildings, turned over to the military authorities by the City of Nürnberg and furnished with all the modern orthopedic equipment. The school facilities include a large-sized piece of land and twelve workshops, the latter fitted up with machinery and tools, which are the gift of private manufacturing firms. The teaching is by professional teachers who have volunteered their services, and foremen from manufacturing shops, whose services are donated by their employers.

The instruction at this hospital resolves itself into two divisions: general and theoretic instruction in the schools of Nürnberg, and practical shop work in the hospital workshops. The curriculum is as follows:

- A. Theoretic work (special classes held by volunteer teachers in Nürnberg schools, with occasional class at hospital).
 1. Left-handed writing.
 2. Improved writing with right hand.
 3. Typewriting.
 4. Stenography.
 5. Commercial course.
 6. General course for industrial workers.
 7. Farm bookkeeping.

8. Theoretic course for the building trades (carpenters, locksmiths, etc.).
9. Theoretic course for building trades (masons, plasterers, etc.).
10. Decoration and design.
11. Theoretic course for machinists.
12. Left-handed drawing.
13. Office management.
- B. Practical work (in workshops with volunteer foremen or teachers).
 1. Tailoring.
 2. Painting.
 3. Bookbinding.
 4. Printing.
 5. Locksmithing.
 6. Shoemaking.
 7. Saddlery.
 8. Weaving (by hand and machine).
 9. Orthopedic mechanics.
 10. Machine tool work.
 11. Carpentry.
 12. Farming.
 13. Paper hanging.
 14. Toymaking.
 15. Blacksmithing.
 16. Brushmaking.

These courses all have regular hours and insist on the men turning out work which is up to commercial standard.¹

As far as can be gathered, the indoor plan is the one least often followed. A few of the larger cripple homes, with the big hospitals at Nürnberg, Munich, Marfeld, and Görden, are the chief examples. The cripple homes, of course, already had their equipment, and Nürnberg and Munich are in Bavaria where the state government finances the cripple work and a larger outlay is possible. Görden may possibly be an exception but reports of its work are not at hand. Other hospitals managed in this way are in remote places where there are no educational advantages and the hospital is obliged to furnish what it can.

OUTDOOR PLAN

The plan more often followed is the outdoor plan, where the instruction takes place in the local trade schools. There are excellent facilities for this, since every town has at least one

¹ Kriegsinvalidenfürsorge. Darstellung der in Nürnberg getroffenen Massnahmen. Würzburg, 1915, p. 1-45.

trade school. Some representative of the education authorities generally serves on the local care committee and the schools are eager, in any case, to offer free instruction. German magazines are full of advertisements of free courses for war cripples, offered by schools of the most varying kind, public and private, from agricultural and commercial schools to professional schools and universities.

The plan of any local care committee can, therefore, be elastic. In a small town it may simply arrange that its cripples be given free instruction at the local trade school, in the regular classes or a special class. In a large town, like Düsseldorf, where there are fifty hospitals, the committee has taken entire possession of a school building equipped with shops and tools and gives twenty courses open to men from all the hospitals. Other institutions of the outdoor type fall between the two extremes, but some reciprocal arrangement between school and hospital may be considered the typical German institution.

The instruction in institutions of the outdoor type is not under military discipline; the arrangement of the school with the hospital authorities is a purely informal one. The hospital director gives the men permission to be absent during certain hours to attend school; the school reports to the director whether or not they attend. Attendance is not compulsory and men cannot be punished for misbehavior, but the school reserves the right to refuse such pupils as seem idle or subversive of order. This generally is discipline enough.

The War Department has a right to dismiss a man from the hospital as soon as his physical treatment is over, without regard to the status of his trade training. This matter has to be arranged by informal cooperation between the civilian school directors and the military hospital authorities. As a rule, the hospitals are willing to keep a man until his trade training is complete, even though they would otherwise dismiss him sooner. It is planned that none of the school courses shall take more than six months, the maximum time for hospital care. These short courses are intended for men of experience who need further practice in their old

trade or in an allied one. Six months is, of course, not long enough to give a man complete training in a new trade, since some require an apprenticeship of one or more years. If a man needs further training after the short school course, he becomes the charge of the local care committee, which supports him while he attends a technical school or pays the premium for apprenticing him to a master workman.

The courses given in this way attain a high standard of efficiency, both because of the good school facilities and because a large number of the men dealt with are already trained workmen with a good foundation to build on. It is the plan of the schools that, when a man is dismissed, he shall be qualified to go back to work or to a higher school. Arrangements are made with the handicraft guilds that men in their line of work shall be able to take their master test at the school and be graduated master workmen. It is also seen to that every man has a fair common school education before he begins on a special trade.

DÜSSELDORF

The Düsseldorf school, which has issued the fullest report obtainable, offers the following curriculum.²

- A. General Education.
 1. Preliminary course.
 - a. Civics.
 - b. German—writing, grammar, etc.
 2. Manual training (as preparation for trade training).
 3. Education of one-armed and left-handed men.
- B. Theoretic Trade Courses.
 4. Building trades.
 5. Metal-working trades.
 - a. Course for machinists.
 - b. Course for draughtsmen.
 6. Commercial course.
 7. Course for railway and postal employees and lower positions in civil service.
 - a. Office work.
 - b. Telegraphy.
 8. Course for store clerks.
 9. Agricultural course.
 10. Course in handicraft as preparation for journeyman's and master tests.

² Gotter, Karl, und Herold. *Düsseldorfer Verwundeten-schule*. Düsseldorf, 1916, p. 7-8.

C. Practical Trade Courses with Shop Work.

11. Electrical work.
12. Metal work.
13. Carpentry and cabinet work.
14. Locksmithing.
15. Stone masonry and carving.
16. Graphic trades (printing, lithography, etc.).
17. Bookbinding, cardboard, and leather work.
18. Painting and plastering.
19. Upholstery and decorating.
20. Dental laboratory work.

Another form of the outdoor plan is to send the cripples out from the hospital to shops in the neighborhood. Sometimes they are regularly apprenticed to a master workman, the care committee paying the premium, sometimes they are sent for shorter periods on payment of a small tuition fee. This system is followed for individuals at Düsseldorf and much more at Cochem. Otherwise, it is an expedient for the smaller places where the school facilities are not good and the cripples are fewer.

It is not possible to find out how many schools there are in Germany of the standard of Nürnberg and Düsseldorf. Others noted in the appendix are referred to, but full reports of them are not available. The two described appear to maintain a very high standard of efficiency. In both, the instruction is regular and thorough and with one end: to fit the cripple to pass the only real test, that of actually making his living in the world without help. The emphasis in all the German writing on the subject is to the same point. The necessity for turning out really skilled workmen is thoroughly realized and it is insisted that whatever work the cripple does, even during his earliest attempts, should be calculated to give him a correct working standard.

SCHOOLS FOR ONE-ARMED

It is recognized in Germany that the one-armed man has the greatest handicap, and special arrangements are made for his training. Besides exercises and instruction in the hospitals, there are schools for the one-armed at Strasbourg,³ Baden Baden, Heidelberg, Munich, Würzburg, Kaiserslautern, Ludwigshafen, Nürnberg,

³ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916: i, 35.

Erlangen, Frankfurt a. M., Hanover, Dresden, Chemnitz, Düsseldorf.

A school for the one-armed means, as a rule, special courses for one-armed men given in the regular city schools where the men will afterward be taught a trade. The purpose of these courses is to exercise the stump and the remaining members of the one-armed man until he is in a position to take up trade-training beside others less seriously crippled. The course includes instruction in the ordinary acts of life which are made difficult by the loss of a hand, such as eating, washing, dressing, tying knots, using simple tools. Six weeks is said to be enough to put a one-armed man in condition to go on with regular training. A great part of the teacher's duty is to convince the men that these things are all possible and need only a little practice. For this purpose one-armed teachers, preferably industrial cripples who have worked out their methods by long practice are the most useful, though crippled officers have already found employment in this way at Nürnberg, Düsseldorf, and Berlin-Zehlendorf.

An essential part of the course is left-handed writing for those who have lost the right arm. This is necessary, whether or not they are to have a clerical occupation, both for removing the feeling of helplessness and for giving the hand greater flexibility and skill. German teachers have made a scientific study of this question and state that left-handed writing can be made as legible and characteristic as right-handed. Samples of left-handed writing from Nürnberg show excellent script after from twelve to twenty lessons.

Left-handed drawing, designing, and modelling are often added as a matter of functional re-education. Men with clerical experience are taught to use the typewriter, sometimes using the stump, sometimes a special prosthesis, and sometimes with a shift key worked with the knee.

All the schools put great emphasis on physical training. In the school at Heidelberg, under a regular gymnasium instructor, the men do almost all the athletic feats possible to two-armed men.

Dr. Künssberg, of the Heidelberg school, states that he has made a list of one hundred

occupations suitable for the one-armed man. He gives the following conclusions drawn from his own experience:

1. One-armed men are, as a rule, able to continue with their old trade. Of those at Heidelberg, only five per cent. were obliged to take up another.

2. The best opportunity for the one-armed man is in narrower specialization within his own trade. For example, the carpenter can take up polishing and wood inlay, the tailor can become a cutter, etc.

3. The most important point is for employers to re-arrange their work so as to reserve for one-armed men the places they are able to fill.

There have been several textbooks written on the subject of the one-armed man and left-handed writing. The best known are: Von Künssberg, *Einarmfibel* (Braun, Karlsruhe); Dahlmann, *Übe deine linke Hand* (Essen); Graf Gaza Zichy, *Das Buch des Einarmigen* (Deutsche Verlagsanstalt, Stuttgart and Berlin, 1915).

AGRICULTURAL SCHOOLS

A special effort is being made to return to the land all who have any connection with it, such as farmers, farm laborers, and even handworkers of country birth. In districts like East Prussia, almost all the wounded come from country districts, and fifty per cent. from agricultural occupations.⁴ It is felt that to allow these men to be diverted from their original work by the war, would be a serious loss to the country. Therefore, there is wide publicity on the advantages of agricultural life, and it is part of the duty of the care committees to encourage interest in it among the wounded. The suggestion has even been made in Bavaria, that cripples from the country districts should be separated while in hospital from the city men, so that they will run no danger of being estranged from their old interests.⁵

All the hospitals which have any land give courses in farming and gardening for their inmates.⁶ It is estimated that there are several hundred such hospital farms, small or large, run by the wounded. In addition to this, there are

definite summer farm courses at agricultural schools and universities, which are free to cripples. East Prussia, alone, has eight such specialized courses in different branches of farming, such as dairying, bee-keeping, forestry, a course for farm overseers, etc.⁷ There are in the empire ten regular agricultural schools for war cripples, which are listed in the appendix. The largest appears to be the farm at Struveshof, Berlin, which accommodates 200 and trains cripples as farm teachers. The one of which the fullest description is obtainable is that at Kortau in East Prussia, which accommodates at present only fifteen pupils.

The farm at Kortau is under military discipline and serves as part of the reserve hospital at Allenstein, two kilometers away. All patients at Allenstein who come from agricultural occupations are immediately transferred to Kortau, that they may be in surroundings which will encourage them to go back to farm work, and that they may have orthopedic exercises and prostheses specially suited to them. The instruction consists of two courses—a preliminary course of four weeks, and an advanced course, the duration of which is determined by the man's physical condition and the time of his discharge from the army. Work is divided into three classes:

1. Work done primarily with the hands and arms: digging, shovelling, wood-chopping, sowing, planting, mowing, hoeing, raking, threshing, and the care of the necessary tools for these occupations.

2. Work where horses are used: plowing, harrowing, driving, and the operation necessary for the care of horses—harnessing, foddering, etc.

3. Exercises over rough ground and obstacles for men with leg injuries.⁸

It would appear that the instruction is of the simple type useful for small farms, and that the matter of farm machinery and its adaptation to the war cripple had not been gone into. The chief need is to fit the small peasant farmer to go back to his own holding, where he may, with the help of his wife and children, manage truck-

⁴ Der Kriegsbeschädigte in der Landwirtschaft. Königsberg i. Pr., 1916, p. 27.

⁵ Zeitschrift für Krüppelfürsorge, Leipzig, 1916, ix, 157-164.

⁶ Zeitschrift für Krüppelfürsorge, Leipzig, 1917, x, 235.

⁷ Der Kriegsbeschädigte in der Landwirtschaft. Königsberg i. Pr., 1916, p. 12.

⁸ Der Kriegsbeschädigte in der Landwirtschaft. Königsberg i. Pr., 1916, p. 27-41.

gardening or poultry-raising. Most of the courses serve this sort of purpose. There seem to be few large scale farms in Germany, and though Maier-Bode, in his article, 'Einrichtungen der Kriegskrüppelfürsorge für die Landwirtschaft',⁹ mentions a dozen or more occupations possible for cripples on large estates, very few of these have anything to do with machinery. A publication issued by the provincial government of East Prussia¹⁰ calls attention to the possibility of the use of electric motors by peasant farmers, but limits its suggestions to small scale operations. Apparently, the schools aim to give only a background of farming theory and a certain amount of efficiency in the operations performed by hand.

To this smaller field, however, a great deal of inventive thought has been applied. Teachers in the various schools have been very ingenious in contriving tools with modified handles which can be gripped with a prosthesis or a stump, and extra straps and hooks to be attached to the clothing for aid in balancing tools. Friederich Maier-Bode in his book gives examples of ways in which cripples of every kind can manage all the ordinary operations of a farm.¹¹ The same author strangely urges that crippled farm workers shall learn, in addition to farming theory, a handicraft which they can practise at home, thus doubly assuring themselves against helplessness.¹²

VI. ATTITUDE OF THOSE CONCERNED TOWARD RE-EDUCATION

TEACHERS

The teaching in all schools is very largely volunteer. That does not mean that it is unskilled, for there are a large number of trade and other school teachers, craftsmen, and invalided officers, who are willing to give their services. The National Teachers' Association has passed resolutions to this effect. Where the committee has funds enough, as at Düsseldorf, a staff of technical teachers is paid. At other places only one

or two are paid and the others donate their services for half time. Employers often donate the services of a foreman for half the day. The War Department helps by assigning invalided officers and non-commissioned officers who happen to have experience in some particular line, to act as instructors of farming, architecture, etc. The make-up of each school staff is, in this way, a matter of chance depending on the funds of the committee, the suitable volunteers in the locality and the personnel at the command of the local military commander.

This does not seem to make for as much lack of system and training as is usual where an institution relies on volunteers. The fact that the care committees and the volunteers are almost all people who hold public positions, and the military spirit which pervades the empire, seem to make for a rigid system and a high standard of efficiency in the schools. The *esprit de corps*, the unanimity of the workers as shown in every report, is striking.

ATTITUDE OF MEN

Reports point to very little difficulty met with among the men. This is due to the fact that they are partly under military discipline and also to the very early beginning of schooling before 'pension psychosis' has time to get a foothold. The appeal made to them is a patriotic one, to the effect that no man is a worthy citizen of the Fatherland who has not the will to overcome his handicap. Much literature has been published on the subject, the motto being '*Der Deutsche Wille Siegt!*' (The German Will Conquers!) One gathers also, from the reports, that the semi-official position of the volunteer teachers and care committee members, who are mostly from the official and the educated classes, makes the whole system more or less a class matter and causes the wounded soldier to accept the plans of his superiors without question.

ATTITUDE OF EMPLOYERS

The attitude of German employers has always been a very paternal one. The large firms appear to have had, for some time, a benevolent policy toward their employees and have furnished them with a great many material conveniences, such

⁹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 157-164.

¹⁰ *Der Kriegsbeschädigte in der Landwirtschaft*. Königsberg, 1916.

¹¹ *Der Arm- und Beinbeschädigte in der Landwirtschaft*. Leipzig, 1917.

¹² *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 157-164.

as baths, rest rooms, model dwellings, etc. These same large firms have been among the leaders in the war movement and have made many spectacular donations to war relief, to the widows and dependents of soldiers, etc. In the matter of trade training, the large employers have also taken a prominent place. As a matter of fact, the duty of helping the war cripple back to civil life has become a patriotic issue and any employer who did not publicly show his cooperation would suffer considerably. Therefore, most of the large firms can be counted on not only for donations to re-education of money, apparatus, and trade teachers, but for an actual share in the work on a large scale.

Many firms have made experiments toward re-training their own crippled employees. The firm of Friedrich Krupp, at Essen, has a hospital on its own grounds to which its former employees are transferred from the military reserve hospital for final orthopedic treatment. While at this hospital, they work as many hours a day as they are able, under medical supervision, in a special shop built for re-education purposes. They receive, while working, a minimum payment of ten marks a month, and anything they make which can be used is paid for at regular piece-work rates. When their training is complete, a place is made for them in the shop. Cripples who were not former employees are also trained whenever there is room for them.¹ The Electric Accumulator Works, at Oberschönweide, Berlin, has a similar hospital and shop.² Most others do not have hospitals, but receive men while at the orthopedic hospitals for training in their works, which thus constitutes a re-education school. These firms are: Phoenix Works, Düsseldorf; Northwest Group of the Association of German Iron and Steel Industries, Düsseldorf; Siemens-Schückert, Siemenstadt, Berlin;³ Emil Jagenberg, Düsseldorf; Rochlingen Bros., Volkingen a. d. Saar.⁴ In all these cases, the men

live at the hospital and go daily to the shop, working under the supervision of a doctor furnished by the employer. In the case of Siemens-Schückert, the military authorities place an officer in the factory to take charge of discipline, though this is not always done.

Smaller employers help in different places by taking men as apprentices by arrangement with the local care committee.

INSURANCE ASSOCIATIONS

The help given to training by state and imperial insurance offices must be counted as help given by employers since, under the law, it is they who furnish most of the funds for these institutions. By the German social insurance laws, employers in any branch of industry all over the empire are required to form *Berufsgenossenschaften* (accident insurance associations), which attend to the payments and the medical care for the men injured in that industry after the first thirteen weeks of invalidity. These *Berufsgenossenschaften* have large funds obtained by taxation of members, for the care of industrial cripples and the prevention of invalidity. They are supervised in each state by the *Landesversicherungsanstalt* (State insurance office) and in the nation as a whole by the *Reichsversicherungsamt* (Imperial insurance office). The insurance officers are allowed, by the law, to spend their funds not only for the care of individual cases, but for any general measures which are for the health of the community. In accordance with this, they have, in different states, voted large sums for orthopedic hospitals, for re-education and even for loans to cripples and for land settlement. Money thus contributed by the state insurance office may actually be considered as money contributed by employers.

ATTITUDE OF WORKMEN

The attitude of the workmen toward the re-education of cripples is not so unanimous as that of the employers. This will be taken up more fully under the head of placement. It may be generally stated that the attitude of the handicraft workers, whose standards are protected by law and who, therefore, have nothing to fear from the inroads of unskilled labor, is cordial;

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 56-60.

² *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 113. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

³ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 291-299.

⁴ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 113. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

that of the unions, consisting of mostly machine workers, is less so.

The representatives of labor who have given the most cooperation to the re-education of cripples have been the Chambers of Handwork. These are a distinctly German institution, in force only since the revision of the *Gewerbeordnung* (the industrial code) in 1897. By former provisions of the industrial code, there existed Chambers of Commerce and of Industry (*Handels- und Gewerbekammern*). They were elected bodies from among the merchants and the industrial workers of a locality which were recognized by the state government and acted to it in an advisory capacity wherever the interests of commerce and industry were concerned. In some districts, the Chambers of Commerce and Industry were represented by a single body, in others, where conditions seemed to call for it, by two.

This left the smaller industries, where a man conducted the manufacture and sale of his own goods, unrepresented. Most of these small industries fall under the head of handwork and the men engaged in them are members of handworkers' guilds.

There still persist in Germany *Innungen* (handicraft guilds) which are lineal descendants of the guilds of the middle ages. They are possible in any trade, such as brace making, butchery, baking, which uses only simple tools worked by hand power and where the worker sells his product straight to the consumer. There is no set line as to which trades have guilds and which have unions; it is a matter of chance development, though the guilds are comparatively few in number and unimportant compared to the unions. The guilds have set rules for membership; they establish a standard length of apprenticeship and tests for the successive stages of journeyman and master workman. A man who passes the master workman's test sets up for himself, is recognized by the guild and has a definite standing before the public.

With the spread of large scale industry, these guild regulations were suffering and it was feared that some useful handicrafts would lapse. Therefore, when the industrial code was revised in 1897, there was included in it the *Handwerker-gesetz* (Handwork Law), which established the

Handwerkskammern (Chambers of Handwork). Their members are chosen from among the handicraft workers, both guild members and union members, and their function is principally to regulate apprenticeship and the journeyman's and master's tests. There is now one or more of these chambers in every state and Prussia has thirty-three. The *Handwerkskammern*, in all parts of Germany, have been of great help to the re-education schools, and, more than that, they have undertaken an active propaganda to urge cripples to learn a handicraft and to become master workmen. This they do without injury to themselves, since the amount of training necessary for the master's test is fixed and there is no danger of a cripple becoming eligible for the guild unless he is perfectly competent to maintain its standard. Also, handwork is dying out and it would be of advantage to the guilds to recruit their numbers. Beside this, although some master workmen take work as foremen in large establishments, most of them set up for themselves and there is very little danger of wage reduction. However, the Chambers of Handwork have made real concessions. At Düsseldorf, Bochum, Nürnberg, Lübeck, Hanover, and in Lower Saxony, they have modified the master test so that its requirements will not mean the usual expense and physical labor. At Düsseldorf, the Chamber has ruled that time spent in the cripple school shall count in the necessary time of apprenticeship. The Chamber of Handwork in Prussian Saxony, in cooperation with the provincial care committee, has established special bureaus of vocational advice for handworkers. Their purpose is to advise a man as to his chances for becoming a master workman and to see that he gets to the proper re-educational school. Spokesmen for the handicraft workers urge that the crippled worker shall be encouraged to settle on the land where he can combine a handicraft with raising his own food.

ATTITUDE OF UNIONS

The unions have not come out so strongly in favor of re-education. In really well-planned schools, like that at Düsseldorf, there is a union representative on the care committee but the complaint is often that the care is a class affair

and that labor is not represented nor consulted in the re-education plans. This comes out more strongly when it is actual placement rather than training which is being considered.

VII. VOCATIONAL ADVICE

COOPERATING MILITARY AND VOLUNTEER AGENCIES

Vocational advice is the first of the civilian functions in the care of the war cripple. There has been such wide publicity that every care committee understands that its duty in urging the cripple to a trade begins as soon as the man is well enough to be visited in hospital. This demands a certain amount of cooperation with the local military authorities who censor the visits made to the men. The usual arrangement is that certain men should be appointed by the care committee to serve in a volunteer capacity as advisers and that their appointment should be sanctioned by the local military command. These men make regular visits to the hospitals and take the names and the necessary information about each new cripple in preparation for advising him as to re-education. Some committees have blanks worked out on which these facts are recorded. (See appendix.) In some places, there is no regular visitor but the hospital doctors and nurses are asked to fill out these blanks. In others, the committees have a large sub-committee consisting of experts in various trades which deal with the whole question of vocational advice.

At the beginning, with such a large body of voluntary workers there was some complaint that many of the advisers did not possess the necessary experience. At present, there has been a good deal written on the subject and the adviser's work has been well defined, so that there seems an improvement. Also schools have been opened in two cities to furnish them with a brief course of training.

As a matter of fact, the principle is fast held to that a man must, if humanly possible, go back to his old trade, or, failing that, to an allied one. This narrows the scope of vocational advice and makes it rather vocational urging. The real requirement would seem to be that the adviser

shall be an enthusiastic and reliable person who would act as a sort of publicity agent for the school and convince the cripple that he will find through it the means of getting back to his old work. Vocational advice, though in point of time it comes before re-education, is so dependent on the re-education possibilities in the different localities, that the description of it here can best follow that of re-education. Vocational advice is almost always the function of the local care committee. The general rule of the military authorities is to send a man for his final, long, orthopedic treatment back to his home district and the committee in this district is, therefore, better acquainted with labor conditions and with the background of the men.

The practice of the committees is to send representatives to the men in hospital as soon as they are well enough to be visited to get full facts on their experience and their physical condition and then advise them as to re-education or immediate work. The military hospital authorities demand that anyone allowed to visit the men be approved by the local military commander. This approval is sometimes given in writing and the visitor receives a regular appointment, at other times it is more informal. The war office has, however, given instructions that district commanders shall cooperate as much as possible. (*Kriegserlass.*)

Vocational advice is managed with more or less efficiency according to the locality. In some localities, such as those of the eighth and eighteenth army corps, the committee requests the doctors to consult with the men in hospital, to fill out blanks and furnish them with the necessary advice.¹

In others there is a special sub-committee of the care committee, consisting of educators and trade experts, which visits the hospitals in a body or holds sittings there. This is the plan in Freiberg, Breslau, Strasburg, and in Grand Duchy of Hesse.² The plan most often followed is that of having, as vocational advisers, individual men with knowledge of trade conditions

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 98.
Korrespondenz für Kriegswohlfahrtspflege, Berlin, 1916, ii, 141.

² *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 45, 267, 290.

and an ability to win the cripples' confidence. These men are, as a rule, volunteers and from the upper classes, but the realization is growing that they must have special qualifications in order to be efficient. Short courses have been opened in two cities for men who wish to take up this service. There were, in January, 1917, four hundred vocational advisers serving in Berlin. Individual men are appointed also in the whole province of Brandenburg,³ in Westphalia,⁴ in Bavaria,⁵ and in Baden,⁶ and many places in Saxony. Instructions issued to the vocational advisers in Leipzig (Saxony) by the local committee read as follows:

1. It is the task of the vocational advisers to seek out such soldiers as are likely, as a result of their wounds, to be hindered in the use of their limbs and to advise them.
2. The vocational advisers will be informed by the committee in what hospitals, military or associate, such visits are desired. It is desirable, when visiting, to get in touch with the physician in charge or the head nurse.
3. The aim which the vocational advisers should hold before them is:
 - a. To combat the discouragement of the wounded men by showing them what cripples have already been able to do.
 - b. To inform themselves as to the cripple's personal circumstances and his trade experience.
 - c. To obtain employment for the soldier with his former employer or at least in his former trade.
 - d. To arrange for the cure of hindrances to movement of the limbs resulting from wounds by orthopedic or mecano-therapeutic treatment.
 - e. To arrange, if necessary, for the education of the wounded man in another trade which is suited to him.
 - f. To place the man in the new trade.
4. As a preparation for this task, the vocational advisers are recommended
 - a. To read the publications issued by the committee for their instruction.
 - b. To visit the Home for Crippled Children in Leipzig.
 - c. To visit the Zander Institute of the Leipzig Local Sick Benefit Society.

³ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 263.

⁴ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, 103.

⁵ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 173.

⁶ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 24.

- d. To keep in constant touch with the members and the officers of the Leipzig Committee for the Care of War Cripples.⁷

VOCATIONAL ADVICE BY MILITARY DEPARTMENT

The war department has recently made some efforts to deal with this question, which was, at first, left entirely to civilian initiative. Each reserve battalion has now a *Fürsorgeabteilung* (welfare division) whose primary duty is to assist men about to be dismissed in the settlement of their pensions. In some commands, this department is very active and takes up the matter of vocational advice or even placement with the men under its authority. Where there is an active care committee, the welfare department generally turns most of the actual case work over to it, but in small places, such as a few of those in East Prussia, the welfare department is very active. The war department, in its decree of December 27, 1916, says, in relation to these departments:

In order to avoid confusion, it may be stated that the military bureaus for vocational advice established in certain military districts are expected to work toward the same goal as the civilian agencies and in complete cooperation with them. It is recognized that, owing to their recent growth, these bureaus are still very faulty; they can best be promoted by a constant exchange of opinion between the military authority and the central care committee.⁸

VIII. PLACEMENT

PLACEMENT AGENCIES

The problem of placement is much simplified by the German creed that a "man must go back to his former trade and, if possible, to his former position." This makes placement more a matter of re-sorting and fitting a man into the niche reserved for him than of studying possible new combinations. Although the creed is uniform, there is no uniform machinery for putting it into practice. The agencies to which a cripple may turn are five:

1. The care committee.
2. The public employment bureau.

⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 97.

⁸ *Leitsätze über Berufsberatung und Berufsausbildung*. Berlin, 1917, p. 20. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 2.)

3. Government service.
4. Employers' and workmen's associations.
5. Miscellaneous charitable and private initiative.

CARE COMMITTEES

The care committee, though the least definitely organized for placement purposes, is generally the agency which comes first in question. To the care committee belongs the routine duty of making connections with the former employer. Many cases are settled in this way without further difficulty. The agent for the care committee is the vocational adviser who interviews the man in hospital. Often he has communicated with the employer before the cripple begins his training and has found exactly what further education is advisable for that particular position. All committees go as far as this in the matter of placement. If the old employer is unable to make a place for the man, some of the committees immediately turn him over to another agency, generally the public employment bureau. Other committees, with more funds and a wider scope, run employment bureaus of their own. The care committee of the Rhine province, an industrial and mining locality, has a system of employment bureaus all over the province, affiliated with the local care committees. The committee of the Province of Silesia has one employment bureau which serves the whole province. In other cases, the care committees do not have separate offices for employment, but attend to it from the regular care committee office for the district, along with vocational advice, pension information, relief, etc. As an example of a care committee employment bureau, that of Heilbronn in Württemberg may be cited. This committee, from November, 1915, to March, 1917, had 656 applications, out of which 246 men were placed.¹ The Dortmund committee, in Westphalia, had 592 applications and placed 165, while seventeen got places for themselves after training provided by the committee.² Even when the care committees do not place men, a good many duties devolve on them in connection with employment, because many

public works or government offices will not take on a new man until his local care committee has certified that he is unfit for his old work. This means giving a great deal of responsibility to the care committee. In places which have a representative and efficient committee, it is a good plan, but in small places where the committee is represented only by one man, there is room for favoritism and unfairness. Complaints in the papers have stated that the decisions are influenced by class prejudice and have made this a reason for asking that the whole cripple care system be put under government control.

PUBLIC BUREAUS

Germany has a regular system of public employment bureaus supported by the municipalities. The bureaus in each state or province are united under a state or provincial directorate, and the directorates in an imperial federation. Some of these bureaus had, before the war, special divisions for the handicapped and others are now forming them. It is advised by the Imperial Committee for the Care of War Cripples that the whole matter of placement should be left to these public bureaus and that no new agencies should be established.³ This has not yet been done, however, and there is still argument as to whether cripples are best placed by the public bureau or a private one and whether their placement should be handled separately from that of the able-bodied.

In a number of the states, the public bureaus are handling the placement of war cripples, handed over to them by the care committees after placement with the old employer has been found impossible. These states are: Bavaria, Brandenburg, Grand Duchy of Hesse, Hesse Nassau, Baden, Saxony and Anhalt. In Bavaria, where the whole work for cripples is under the state government, each district has a special bureau for cripples, affiliated with the public employment bureau. The other states and provinces handle the work through the regular employment bureau, which keeps a special department, or at least a list of positions, for war cripples.

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 126.

² *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, ii, 355.

³ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

PUBLIC BUREAU REPORT

The report of the public employment bureau of Berlin, Province of Brandenburg, which has a special division for cripples, is as follows:

August 1, 1915, to December 1, 1916

Applications received . . . 2,700

Positions available . . . 2,000

Positions filled 1,400

Of these 1,400, 730 were followed up after they went to work, and the report is not so encouraging. One hundred and forty-five changed their position eight times before the time came for discharge or renewal of contract; forty-five stayed one week; twenty-nine stayed two weeks; twenty-seven, three weeks; twenty-two, four weeks; forty-two, over a month; twenty-two, two months; and thirty-five, three months. (*Norddeutsche Allgemeine Zeitung*, February 3, 1917.)

Work is done here and there by individual bureaus in states and provinces which have not taken over the work as a whole. In East Prussia, an agricultural district, the provincial government has established a farm employment bureau at Königsberg. In Strasburg, Alsace, the municipal bureau takes care of cripples and has an arrangement with the Fifteenth Army Corps commandant by which they can be employed in the military clothing workshops.

GOVERNMENT SERVICE

The Imperial Government has, of course, an enormous number of positions at its disposal, since the railways, as well as all the post office and civil service positions are included. The government has already promised that all former employees in any of these lines will be re-employed, if not in their old capacity, in a kindred one. These men, according to instructions from the Imperial Chancellor, are to be paid without consideration of their pensions. This is a new departure, since government pay, in civil service positions, was always subtracted from the amount of the pension.⁴ The promise, however, decidedly reduces the number of possibilities for the ordinary cripple.

⁴ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, II, 157.

The post office department has decided to give all future agencies and sub-agencies in the rural districts to war cripples, provided they are fit for the positions and want to settle on the land.

Germany has the difficulty found in other countries with untrained men who feel themselves entitled to government positions, and she has taken measures to guard against it. The Imperial Post Office has directed the postal officials in all the states to follow the example set in the Rhine Province and refuse employment to war cripples unless it is certified by their local care committee that they are unfit to go back to their old occupation. In minor civil service posts, no new man is accepted without a certificate, either a *Zivilversorgungsschein* (civilian care certificate) or an *Anstellungsschein* (placement certificate). The *Zivilversorgungsschein* guarantees a man employment or support in case no position is vacant. It is issued only to men who have had twelve years' honorable service.⁵ The *Anstellungsschein* is given to other non-commissioned officers or privates who are certified by their local care committee as being unable to take other work but it does not guarantee that they will be accepted and, if not, they have no indemnity payment.⁶

CITY GOVERNMENTS

The city and other local governments also make every effort to take in cripples, but their possibilities are small. In many places, such as Freiberg, they exercise an indirect influence by refusing to give city contracts to firms which do not re-employ their own injured workmen, or even new crippled men for whom they have room.⁷ In Nürnberg, a foreman is not allowed to discharge a war cripple without bringing the case before a committee of the city, appointed to see that justice is done in such cases.⁸ In general, the city governments also are obliged

⁵ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, II, 89.

⁶ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, II, 89.

⁷ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, II, 124.

⁸ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 178. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

to protect themselves. Most of them will not consider an application for work from a war cripple unless the care committee certifies that he cannot resume his old trade.

WAR DEPARTMENT

Aside from these regular government employments, there are special employments due to the war and under the war department. The army workshops at Coblenz⁹ and Kassel¹⁰ employ discharged crippled soldiers to work on shoes, clothing and saddlery. At Danzig, unskilled men are taken and given regular training as at a re-education school. It has been recommended that the other army corps commanders adopt this plan and employ only war cripples in the workshops under their command.

A military announcement of March 17, 1917, asks that all crippled soldiers should be turned, as much as possible, to civilian work at the rear, such as that of airplane mechanics, blacksmiths, etc. The men formerly employed in these capacities were retained under army discipline and given army pay, which is much less than civilian pay. The war office now promises that they will be retained in a civilian capacity and will retain their pensions.¹¹ It also promises that, after the war, every effort will be made to get these men back to permanent civilian positions.

The war department has recently established a *Versorgungsabteilung* (welfare department) in every reserve troop where invalided men are sent while awaiting discharge. This department is supposed to facilitate their return to civil life through advice about re-education or employment. In cases where there is no very active local care committee, this department communicates with the former employer and even attempts some placement activity, but the plan is so new that not much is reported of it so far.

The war office publishes twice a week a journal, *Ämtliche Mitteilungen* (official information), which gives the positions open for war cripples. All advertisements from employers are accepted free and the paper is distributed to care com-

mittees and government officials all over the country. The Prussian War Ministry publishes a similar bulletin, *Anstellungsnachrichten* (Employment News).

IX. ATTITUDE OF THOSE CONCERNED TOWARD PLACEMENT

ATTITUDE OF EMPLOYER

One of the most active agencies in placement is the employing class. As has already been mentioned, the re-employing of crippled workmen has been made such a patriotic issue and Chambers of Commerce, city governments and newspapers espouse it so violently, that no employer who could possibly make a place for his crippled workmen would dare refuse to do so. Many of the largest firms, such as Krupp and Siemens-Schuckert not only re-employ their former workmen, but retrain them. Krupp guarantees them the full amount of their pension for five years, even though the government should reduce it on account of increased earning capacity.

The large employers' organizations have also put themselves on record in favor of re-employing cripples. Such are the *Nordwestliche Gruppe des Vereins deutscher Eisen- und Stahl-Industrieller*; the *Verein für bergbauliche Interessen*; the *Gesamtverband deutscher Metallindustrieller*; the *Verband deutscher Steindruckereibesitzer*; the *Deutscher Arbeitgeberverband für das Baugewerbe*; and the *Bayerischer Industriellerverband*.¹

There has recently been formed a national association, the *Vereinigung deutscher Arbeitgeberverbände* (Union of German Employers' Associations), whose aim is to promote the employment of cripples. This is a federation of seventy-five different trade associations, employing between them two and a half million workmen. This association puts placards in all the hospitals, stating its willingness to employ war cripples and directing them to apply for work to the associations belonging to it.² The names of these associations representing principally the metal-working trades are listed in the appendix.

The federation states, as its belief, that the reinstatement of crippled workmen is a matter

⁹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 332.

¹⁰ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1915, I, 170.

¹¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 125.

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 243.

² *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1915, I, 15.

which concerns the employer alone and it does not consult the unions in any of its measures.³

These are general measures, but there are smaller associations which take much more definite ones. Many trades have employment bureaus of their own where any workman formerly employed in that trade may apply and be reinstated if not with his old employer, with another in the same line. Such bureaus are run by the *Verband deutscher Diplom-Ingenieure*, *Deutsche Kraftfahrerdank*, *Offenbacher Lederwarenindustrie*,⁴ and the very large steel combination, *Rhein-Westfälische Industrie* and *Nord-westliche Gruppe des Vereins deutscher Eisen- und Stahl-Industrieller*. The former of these last two placed to June, 1916, 5,002 war cripples; the latter, to the same date, 2,200.⁵

The merchants have not taken such a prominent stand as the manufacturers but their representatives have also expressed themselves publicly in favor of reinstating all crippled employees. The problem here is not so much the objection to crippled former employees as to the inrush of new, uneducated employees. Merchants are very definite in warning against this and insisting that war cripples must have a thorough commercial course before they can apply for any sort of clerkship.⁶ To this end, the Prussian Chamber of Commerce has directed the commercial schools to work closely with the care committees, so that their courses can be made of real use.

ATTITUDE OF WORKMEN

The attitude of the workmen toward the re-employment of cripples has not been cordial. Here again, we may distinguish between the handworkers proper and the industrial workers. The master guilds among the handworkers have held out every encouragement to cripples to set up for themselves as independent master workers. An association has been formed to lend

money to returned handworkers and to their wives while they are away, so that the small business may be kept up. There is a committee in Wilmersdorf, Berlin, for the care of returning handworkers and small shopkeepers and there are other such committees in the Rhine Province. The *Handwerkskammern* in Prussian Saxony and Hanover have agreed to try to find work for crippled handworkers. All this is for the advantage of the handworkers, since their craft is in danger of dying out and they are glad to strengthen it by new recruits and public interest. They combine their friendly efforts with propaganda for keeping up the standard of the master test.

The unions find themselves in a different position. There are three different types of union in Germany and they will have to be distinguished, since they do not all take the same attitude: (1) The Hirsch Duncker unions are the old conservative organizations composed of skilled workmen. They have no political affiliations and seldom strike. (2) The Christian unions are Catholic organizations in the nature of benevolent societies, who also have very little political interest. They are very systematically organized and maintain advice offices for members all over the country. (3) The socialist unions are of two sorts, the free local unions and the free central unions. These latter are the newest and are more akin to syndicalist organizations (known popularly as the 'yellow' unions).

The attitude of the Hirsch Duncker union is friendly, if not over cordial. The Christian unions are active in favor of placement of cripples. Their union advice offices combine help for war cripples with the regular work; they have erected schools for the re-education of their own men and others; they accord their wounded members full sick pay and they have subscribed largely to all war relief work.⁷ The federation of Christian unions has established an employment bureau in Berlin for reinstating their own members in industry.⁸

The socialist unions are the ones which have shown the least sympathy. The situation is such

³ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 244.

⁴ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 46.

⁵ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1917, iii, 33.

⁶ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 114. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 595.

⁸ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, ii, 22.

⁹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 351.

that any open expression of hostility would lay the objector open to charges of lack of patriotism. The socialist unions, therefore, protest their interest in their fellow workmen, but they object to the volunteer organization of the work which, in their opinion, makes it a class matter. Their representatives have demanded in the Reichstag that it be handed over to the Imperial Government, but without result. At a meeting at Cologne, held August, 1916, at which all types of union, except the yellow, were represented, the following resolution was passed:

The workers and employees of Germany take the liveliest interest in sick and crippled soldiers and have always taken part in war cripple welfare work, especially that of the National Committee.

The work for war cripples, which will be of the greatest economic importance, especially after the close of the war, must, first of all, have the confidence of its beneficiaries if it is to be effective. This confidence can only be won if the proper conduct of the work is guaranteed by an organization established by law. Since the cripple welfare work is still without such an organization, the representatives of the workmen's and employees' organizations of Germany, assembled in Cologne, August 23 to 25, demand its regulation by national law.⁹

A meeting of the workmen's and employees' unions of Brandenburg came to the same conclusions. (*Vorwärts*, April 12, 1917.)

There is also complaint that the workmen's representatives are not asked to serve on local care committees, or when they are asked that they have no active part in the work. The 'yellow unions' have been loudest in these objections, and it is obvious that there is a distinct attitude of hostility between them and the employers in the whole matter. At the meeting of the National Committee in Cologne, Herr Münchcrath, factory superintendent, stated:

If employers and workmen are to be active in such care committees, they must be inspired by mutual confidence. But confidence between employers and the members of the aggressive type of unions has so far vanished that there can be no further talk of it.¹⁰

⁹ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 122. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

¹⁰ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*, Berlin, 1917, p. 129. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

ARBITRATION BOARDS

There has been no open discussion of the possibility that wage standards will be reduced by the entry of cripples into industry. The assumption has been that this will not occur and the contrary has not been proved. In this matter, however, the unions have made a very sage move. Instead of protesting about the employment of cripples, they have championed the establishment of *Arbeitsgemeinschaften* arbitration boards in each trade which shall decide on the wages of each cripple on his individual merits.

These boards are to be composed of equal numbers of employers and workmen, sometimes with a neutral president. The unions have been striving to get such arrangement as this for other purposes for a long time. At present, it would seem from their attitude that they consider it the best policy to push the formation of arbitration boards and to strive to make them permanent after the war. It would seem likely that their campaign to be represented on local care committees may be in part a political move toward this end.

The arbitration board idea has been very successful in Berlin, where there are boards in the following industries: woodworking, breweries, stone masonry, building trades, saddlery and leather work, transporting, coal dealing, express companies, textile work.¹¹ The woodworkers and printers¹² have organized arbitration boards on a national scale.¹³ Also the war office has constituted such boards in war industries such as metal work. This is a trade where there was formerly no cooperation at all between employers and employees.

The arbitration board idea has a certain amount of public approval. In a few towns, public contracts are not given to firms which do not abide by their decisions.

ATTITUDE OF CRIPPLES TO EMPLOYMENT

There are no statistics to show to what extent the ideal of the volunteer workers is realized

¹¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 244, 1915, viii, 289. *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, ii, 54.

¹² *Lübecker Lazarett Zeitung*, 1916, ii, 5.

¹³ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, ii, 111.

and the cripple is reabsorbed into the mass of the people. Dr. Biesalski states that from ninety per cent. to ninety-five per cent. are thus reabsorbed. The general statement is made by most writers, that the difficulty of getting cripples settled in work is lessening very much, owing to the wide publicity employed and the systematic way in which the care committees get hold of the men. Figures from the provincial care committee of the Rhine Province, for June, 1917, give the proportion of cripples who go back to work as follows: "The total number of unemployed cripples dealt with by the 43 local care committees under the provincial committee was 927. Of these, there were: willing to work, 209; work shy, 92; temporarily unfit to work, 395; permanently unfit, 231 (*Pensions Gazette*, 8)." (Quoted from *Soziale Praxis*.)

The report of the Rhine committee further gives the reasons for unemployment: "nervous disability, 20.5 per cent.; tubercular, two-thirds per cent.; blind, 1.8 per cent.; arm amputations, 3 per cent." The majority of unemployed who are willing to work are disabled in arm or leg.

As to the proportion of cripples going back to their old trade, an indication may be had from the statistics published by the committees of Coblenz and the agricultural advice office at Baden. Of the 454 applicants for work at Coblenz in two months, the percentage going back to their old trade was 89 per cent., although only 42 per cent. had so intended. At Baden, out of 204 applicants, 188 went back to their former trade, although only 95 had so intended.

MACHINES FOR CRIPPLES

A subject which may be taken up under placement is that of the alteration of machines to suit the use of cripples.

This appears not to have been gone into very widely. Some of the schools use an Underwood typewriter with shift key worked with the knee, and these are installed in some business offices which employ cripples. In Strasburg, the ticket chopping machines are altered so as to be worked with the foot and permit their use by one-armed ticket choppers. There are descriptions of a bicycle for cripples and a special

draughting board but it is not stated that these have ever been used.

The field where the most work has been done is that of farm tools. Friederich Maier-Bode, in his book, *Der Arm- und Beinbeschädigte in der Landwirtschaft*, and the East Prussian Care Committee, in its publication, *Der Kriegsbeschädigte in der Landwirtschaft*, give long lists of simple farm tools which can be altered as to length of handle or general shape so as to be used for cripples. The idea of using electric power for some of these simple operations is only beginning to gain place. Since the war has made fuel and kerosene so scarce, the small towns and country districts are beginning to install electricity. The Province of East Prussia is installing power plants in several places from which all the small farms in the district can be supplied. The committee recommends to peasant farmers the use of small electric motors for milking, milk separating, threshing, beet crushing, lifting heavy weights, etc. It states that on a few very large estates it is possible to use electric plows and harvesters and recommends that cripples try to get employment in connection with these. It also recommends the electric motor to handicraft workers, such as butchers, locksmiths, wheelwrights, etc.¹⁴

In order to avoid exploitation of cripples, a proclamation has been issued addressed to them and signed by most of the large workmen's organizations. It directs the cripples, if they find unjust conditions in the labor field, to apply to the signers for redress or placement.

ACCIDENT INSURANCE

Another question which comes up in connection with employment is that of accident insurance. The matter of increased number of industrial accidents likely to occur where cripples are employed came up for discussion at the meeting of the *Vereinigung für Krüppelfürsorge*, Berlin, February, 1915. At this meeting, Herr Witowski, director of the *Reichsversicherungsamt* (Imperial insurance office), admitted the difficulty, but the remedy he proposed was simply further watchfulness on the part of the accident insurance

¹⁴ *Der Kriegsbeschädigte in der Landwirtschaft*. Königsberg, i. Pr., 1916, p. 108-114.

associations. These associations, as has been mentioned, already have hospitals and re-education schools of their own and exert themselves to prevent the occurrence of invalidity as far as possible so as to avoid paying the pension required by the insurance law.

The attitude of employers toward war cripples, as has been said, must necessarily be a very liberal one and employers have not pressed this question. In a few cases, there have been difficulties. Section 178 of the *Reichsversicherungsordnung* (Imperial Insurance Law) provides that where a man's working capacity is permanently lessened he may work uninsured, if the poor law authorities are caring for him. Some trades have been enforcing this provision with war cripples, but the Prussian Minister of Commerce and Industry has warned against too wide an application.¹⁵

The Prussian War Ministry has decided that where men are discharged from the army and go to work at a trade where insurance is compulsory, they must be insured under the provisions of the law.¹⁶ This apparently applies to all cases except those just mentioned, which are proved to be permanently injured and under the care of the poor law authorities.

There has been a good deal of discussion about the status of men still in hospital and, therefore, under military authority who go out to work in factories, whether for pay or not. The Prussian Ministry of War has decided that such work must be considered part of their medical treatment and that they do not come under the provisions of the insurance law, but under the *Mannschaftsversorgungsgesetz* (provision for troops),¹⁷ and any injury to them must be the responsibility of the war department. In Westphalia, however, the care committee had so much difficulty with employers, that it arranged with an insurance company to pay the accident compensation in these cases.¹⁸

INVESTIGATION OF EMPLOYMENT FOR CRIPPLES

Systematic work is only just beginning in the field of investigation as to possible trades for

cripples. The Bochum School for the wounded divides the trades taught into: sitting occupations, for men with thigh amputations; half-sitting occupations, for those with amputations just above or below the knee and occupations for the one-armed. The school teaches twelve sitting occupations, nine half-sitting, four for the one-armed and twenty miscellaneous. Further details are not given.¹⁹

The *Deutscher Industrieschutzverband* (German Union for the Protection of Industry), Dresden, has made a report of seventy-nine trades compatible with different injuries. The trade operations, which are not given in great detail, are such general ones as cabinet-maker, locksmith, tailor, etc.²⁰

The most complete piece of work which has been done in this line, is the report entitled, *Lohnende Beschäftigung für Kriegsbeschädigte aus dem Metallgewerbe* (Gainful Occupation for War Cripples in the Metal Trades), by Franz Almstedt (Publisher, Max Jänecke, Leipzig, 1916). The author has been a teacher in the city continuation school at Hanover and, since the war, teacher and vocational adviser in the hospital school. He gives a careful description of ninety-two operations in the metal trades, with an exact statement of their compatibility with injuries from the loss of a finger to loss of both arms or legs.

X. PUBLICITY

HISTORY

Public education on the subject of proper treatment of war cripples has been very efficiently managed. There was, at the beginning of the war, the usual outbreak of misguided charity. The newspapers were loud in their demands for *Heldenheime* (old soldiers' homes), where all cripples could be maintained in idleness for the rest of their lives. Uninformed volunteer societies sprang up everywhere. But the leaders in orthopedic work immediately took up the definite task of educating public opinion.

Dr. Biesalski, the secretary of the federation for the care of cripples, made a tour of the whole

¹⁵ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, II, 34.

¹⁶ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, IX, 187-188.

¹⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, IX, 188.

¹⁸ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, IX, 348.

¹⁹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, IX, 406.

²⁰ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, IX, 326.

country under the auspices of the Red Cross, speaking in all the important towns before the social workers and officials, and instructing them in the most modern principles of cripple work. The result was that the new committees, when first formed, were prepared to conduct their work in the most intelligent way, and that there was very little volunteering and subscription of money for undesirable forms of charity.

This tendency was diverted very early to an interest in re-education schools.

PUBLICATIONS

There are several regular publications which keep the social workers informed of the progress and plans of cripple work. The *Zeitschrift für Krüppelfürsorge*, the official magazine of the *Vereinigung für Krüppelfürsorge* has devoted its pages almost entirely since the war to reports on the work for war cripples. There are besides this the regular magazine of the *Reichsausschuss* and its special reports and pamphlets, the magazine of the Brandenburg care committee, *Vom Krieg zur Friedensarbeit* (From War to Industry) and the reports on general war work in the *Korrespondenz für Kriegswohlfahrtspflege* (Correspondence on War Welfare Work). These serve for the technical information of the workers but the various societies have also been at great pains to issue publications for the thorough information of the public. The *Vereinigung für Krüppelfürsorge* has published three illustrated pamphlets by its secretary, Dr. Biesalski, intended to convince both the cripples and the general public of the truth of his maxim, "There is no such thing as being crippled." The books are full of illustrations and examples of the fact that cripples can and do return to industrial life. They are: *Kriegskrüppelfürsorge, Ein Aufklärungswort zur Trost und zur Mahnung*, (Work for War Cripples, a Word of Comfort and Warning), *Die ethische und wirtschaftliche Bedeutung der Kriegskrüppelfürsorge und ihre Organisation in Zusammenhang mit der Gesamte Kriegshilfe*, (The Ethical and Economic Significance of the Work for War Cripples and its Organization in Connection with General War Work), *Die Fürsorge für unsere heimkehrenden Krieger, insbesondere die Kriegskrüppel* (The Work for Our Home-

coming Soldiers, especially the War Cripples). All three are published by Leopold Voss, Leipzig, 1915.

There are also several pamphlets published in the interests of agriculture, proving the ease and profit with which cripples may return to the land. Such are *Der Arm- und Beinbeschädigte in der Landwirtschaft* (Agriculture for Men with Arm and Leg Injuries) by Friederich Maier-Bode, vocational adviser at Nürnberg-Schafhof, and *Der Kriegsbeschädigte in der Landwirtschaft* (The War Cripple in Agriculture), published by the East Prussian care committee.¹

These books are all as much to provide arguments and material for the care committees as for the cripples themselves. One particularly popular appeal aimed directly at the cripple is the pamphlet by Dr. Würz of the *Oscar-Helene Heim* called *Der Wille Siegt* (Will Conquers). This is meant for distribution in all the hospitals. It is a collection of the histories of successful cripples from Tamburlaine and Frederic of Homburg down to the veterans of the present war. Rehabilitated cripples suffering from all types of injuries tell their own stories and urge their comrades to similar courage. Its purpose is frankly to provide the stimulus of patriotism, pride and ambition, which will overcome hospital lethargy and pension psychosis. The conclusion may serve as an example of the high dramatic key in which it is couched:

A Rousing Call to War Cripples

You war cripples! Receive these stories and these living examples of the conquering power of the will as good friends into your souls! When trouble and faintheartedness paint sinister pictures before you, do not believe the terrible spectres. Look upward, toward the victories which courageous war cripples have won. Listen to the message contained in these life battles of crippled men. Life is earnest and you have learned how hard it can be for each one of us. But do not let your working power grow rusty. Be good warriors, even on the battlefield of industry. Think not of what you have lost, look not behind you, but stride forward, certain of victory. If you believe in yourselves, you are planting many a victorious banner for the future. Let all that you learn become a weapon in your proud fight for independence from the help of others. Be patient as

¹ Der Arm- und Beinbeschädigte in der Landwirtschaft. Leipzig, 1917. Der Kriegsbeschädigte in der Landwirtschaft, Königsberg i. Pr., 1917.

you practise your new knowledge. You have still, as you have ever had, the joy which lies in every piece of work. With every tiny success, you are building up the strength of the Fatherland. The German people needs you as much as it needs the unwounded.

*Dare to Will! Will conquers!*²

There are other publications of this same nature, meant to influence the war cripple while he is in hospital and prepare his mind for the future. One such is the *Lübecker Lazarett Zeitung* (Lübeck Hospital Journal) published by the Lübeck care committee and distributed free to all cripples in the city. Among short bits of news about trades and pensions, it has inspiring verses and talks on the joy of suffering for the Fatherland, and each month an article on the German nature, featuring such qualities as industry, courage, patience, and patriotism.

EXHIBITIONS

Exhibitions on the subject of cripple care have been held in all parts of the empire. A large exhibition on the care of the sick and wounded in war was arranged in December, 1914, stayed a month in the *Reichstag* building in Berlin and then travelled to Vienna and Buda-Pest and to all the large cities of Germany. In this exhibition, a section arranged by the *Vereinigung für Krüppelfürsorge* exhibited all the phases of re-education, model workshops, photographs of cripples at work, and samples of the product. The newspapers reported this exhibition as being crowded during the whole course of its progress. The *Vereinigung für Krüppelfürsorge* plans to establish a permanent museum for cripple welfare work which shall be concerned with the care of industrial as well as war cripples.³ Smaller exhibitions have been arranged by the care committees in different localities with samples of the work done there, *i. e.*, at Altona, Charlottenburg, Stuttgart, Düsseldorf, Leipzig, Potsdam, Cologne, and Munich.

The workers in the cripple field are urging that more use be made, even than has yet been made, of slides and moving pictures illustrating the possibilities of work for cripples. These are in use for the lectures given as entertainment at the

larger re-education schools and it is urged that more of them be shown before the general public, so that the wives and dependents of cripples will realize the possibilities for them.

Through these publications, the host of volunteer workers in Germany is kept continually informed as to the measures for returning cripples to civil life and is also reminded that one of the first duties of the worker himself is publicity in the instruction of the cripple and his dependents as to the possibility of his returning to industry.

XI. PENSIONS

The source of the pension provisions for non-commissioned officers and privates is the *Mannschaftsversorgungsgesetz* (law of provision for troops), passed May 31, 1916. According to this, a pension is granted if a man's working capacity is reduced in any measurable degree, *i. e.*, ten per cent. or more. Injuries which amount to less than ten per cent. are not considered; for injuries which impair the working capacity from ten per cent. to one hundred per cent., the pension is correspondingly increased. Pensions are graded according to military rank. The full pension for complete disablement is, per year:

Private	540 marks
Corporal	600 marks
Sergeant	720 marks
Sergeant Major . . .	900 marks

If the degree of disablement is lessened, pensions can be accordingly diminished. When the degree of disablement reaches less than ten per cent., pensions can be entirely withdrawn.¹

To the pension proper, there are various additions:

1. *Kriegszulage* (war allowance), fifteen marks a month. This is paid wherever the pension is paid. If the pension is diminished, the war allowance remains the same. If the pension is withdrawn on account of regained working capacity, the war allowance is withdrawn.²

¹ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln.* Berlin, 1917, p. 29. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.) *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 58.

² *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln.* Berlin, 1917, p. 29. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.) *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 58.

³ WÜRTZ, HANS. *Der Wille Siegt.* Berlin, 1916.

⁴ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, Monatsblatt, 25-27.

2. *Verstümmelungszulage* (mutilation allowance), twenty-seven marks per month. This is paid in case of serious mutilation, such as the loss of an arm, a leg, an eye, etc., or in case these members are rendered useless as by paralysis. For double mutilation, such as the loss of both legs, total blindness, etc., there is double allowance. The mutilation allowance cannot be withdrawn so long as mutilation exists, even though working capacity be completely regained (e. g., through the use of prostheses). It can only be withdrawn if mutilation no longer exists, e. g., if the use of a paralyzed limb is regained.³

3. *Alterszulage* (old age allowance). Paid to men over fifty-five years old whose yearly income does not reach 600 marks. The amount paid is the difference between the man's actual income and 600 marks.⁴

4. *Zusatzrente* (supplementary allowance). This is a later provision not included in the *Mannschaftsversorgungsgesetz*; it is paid from a special fund recently set apart by the Imperial Government for this purpose. According to a report made by the intelligence department of the English local government board, the German government has promised to revise the pension system so as to take into consideration a man's former earnings and not merely his military rank. This cannot be done until after the war, when more funds will be available and the supplementary allowance is granted as a temporary measure. The conditions under which it is granted were explained by the Prussian War Ministry, in a decree of June 15, 1917, as follows:

The allowance is granted to those who had a definite income from work before the war and who have lost it as a result of war injuries, or who had such an income in prospect and have lost it in this way. The impairment to working capacity must be thirty-three and one-third per cent. or more, and the applicant must show that he has made all possible efforts to get work which will make him self-supporting, and that the local care committee has also been unable to place him. The

applicant's total income must be less than 5,000 marks per year, and must be diminished by at least one-fourth as a result of his injuries. In reckoning income, all pension allowances, except mutilation allowance, are counted. The supplementary allowance is granted for only six months at a time and is not renewed if conditions improve and put the man outside its provisions. The allowance is graded according to conditions. It may reach forty to forty-five marks a month.⁵

The authority for the granting and readjustment of pensions is the Ministry of War, which can delegate its authority to specially appointed boards. The amount of impairment of working capacity is determined by a military board appointed for this purpose. Its decisions may be appealed from to a higher board and finally to the war office itself. This board meets once a year to consider changes and withdrawals of pensions. No change is made except after regular proceedings where impairment or regaining of working capacity must be proved.

There is great dissatisfaction with the whole pension system, which even the late concession of the supplementary allowance has not remedied. An investigation conducted in the Rhine Province by cripples themselves revealed, according to *Vorwärts*, great misery and injustice. Pensions were proved in every case to be decidedly too small. (*Vorwärts*, September 24, 1917.) The director of the Bureau for Information and Vocational Advice maintained by war cripples in Berlin makes the same statement. This bureau has complained to the Ministry of War particularly about the way in which the mutilation allowance is determined. (*Vorwärts*, October 26, 1917.) It has been decided to address to the *Reichstag* a petition signed by as many cripples as possible and asking an increase in pensions. (*Vorwärts*, September 24, 1917.)

The newspaper *Volksstimme*, Hanover, October 24, 1917, states that the number of cripples discharged without pension is so enormous that there is absolute need of some authority to settle disputes between the war department and the pension claimants. *Vorwärts*, October 30, 1917, states that there are many thousand pensioned cripples in bitter need. These statements are

³ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 29. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.) *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, ix, 58.

⁴ *Verhandlungsbericht über die Tagung für Kriegsbeschädigtenfürsorge in Köln*. Berlin, 1917, p. 29. (Reichsausschuss der Kriegsbeschädigtenfürsorge. Sonderschriften, Heft 1.)

⁵ *Vom Krieg zur Friedensarbeit*, Berlin, 1917, iii, 35. *Korrespondenz für Kriegswohlfahrtslege*, Berlin, 1916, 2, 156.

not easily reconciled with those made by the social workers to the effect that ninety per cent. of war cripples are able to return to industrial life. There is evidently a considerable difference of attitude between the volunteer worker class and the socialist element which these papers represent.

The matter of pension revision has come up for discussion before the *Hauptausschuss* (head committee) of the *Reichstag*. It was stated at this discussion that the administration of pensions is much too bureaucratic and that it is absolutely imperative that the condition of veterans shall be improved. (*Frankfurter Zeitung*, October 2, 1917.) It was resolved that the Chancellor shall bring before the *Reichstag* a proposal for changes in the *Mannschaftsversorgungsgesetz* as soon as possible, at the latest by the beginning of the year 1918. (*Frankfurter Zeitung*, October 2, 1917.) No report of such a proposal has been received.

The principal changes desired are, as has been intimated, the adjudication of pensions on grounds of a man's age, occupation, and family circumstances instead of military rank, and the granting of permanent pensions irrespective of changed earning capacity. A suggestion made by Dr. Siegfried Kraus, of Frankfurt, is that pensions should not be fixed until a definite time after discharge when a man has had a chance to try out his earning capacity and that, once fixed, they should be inalterable.

The capital settlement law is also criticized on grounds of its discrimination against age. As it now stands, the boy of eighteen has the best chance at a farm, while it is the man of forty who would be best able to conduct a farm, who has sacrificed most in war, and who has the least chance of finding other employment.

SOCIAL INSURANCE FOR WAR CRIPPLES

War cripples, under certain conditions, have a right to payments under the social insurance laws, in addition to their pension payments. The social insurance organization has been briefly sketched under hospital facilities. According to the *Reichsversicherungsordnung* (Imperial Insurance Law) of June 19, 1911, there are three kinds of social insurance: sickness, accident, and

invalidity (including old age). The law stipulates that accident insurance is paid only in case of injuries occurring while the claimant was at work in one of the insured industries. Accident insurance, therefore, does not come into question for crippled soldiers, but sickness and invalidity do.

SICK BENEFITS

The costs of medical care and sick payments for the first twenty-six weeks of illness are borne by *Krankenkassen* (sick benefit societies) authorized by the state. To these, the workmen contribute two-thirds and the employers one-third. It is not stipulated that the illness shall be caused by work; therefore, men wounded in war, if still members of sick benefit societies, would have a right to these payments. Since the war department takes charge of all medical treatment for such men, their rights would be limited to the sick payments. Membership in these sick benefit societies is compulsory for workmen engaged in most of the ordinary trades. It is usually allowed to lapse when the man is called to military service unless his family or some charitable society makes the payments for him. However, men injured in war have a right to the payments, if illness set in within three weeks of their leaving the sick benefit society or if they became voluntary members of the society beginning within three weeks of leaving the compulsorily insured trade.⁶

INVALID INSURANCE

Medical treatment and pension, in case of invalidity and old age, are paid one-half by employers and one-half by employees. A man is entitled to them if he has made two hundred weekly payments. He must accept whatever medical treatment is offered, whether at home or in a sanitarium and must consent to re-education, prostheses, etc., or he loses his rights to a pension. A war cripple who has made the two hundred weekly payments is, therefore, entitled to the invalidity pension in addition to his pension from the war department.⁷ As a rule, medical treatment does not come in question because it is

⁶ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 169.

⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 171.

attended to by the war department, but, in case of a relapse after discharge or of further expensive treatment, the sanatoria of the insurance societies are very useful.

Even this double possibility does not relieve the poverty among pensioned cripples. At a session of the *Hauptausschuss* of the *Reichstag*, October, 1917, it was resolved that all invalidity pensions should be increased fifty per cent. during the years 1917 and 1918. The weekly premiums were also to be increased fifty per cent. (*Frankfurter Zeitung*, October 2, 1917.)

CAPITAL SETTLEMENT LAW

The only important change in the pension laws resulting from the present war, was the *Kapitalabfindungsgesetz* (capital settlement law), of June 3, 1916. This law was the result of the combined demand for greater generosity in pensions and for some means of keeping the agricultural population on the land. It provides for commutation of part of the pension into capital payment under certain conditions. The provisions are briefly as follows:

a. Purpose for which settlement may be used: Purchase or improvement of real estate property, or building of dwelling houses. This is interpreted to include purchase of farms, market gardens, suburban dwellings, city dwellings, improvement of houses by addition of workshops or stores, purchase of city workingmen's tenements by a number of veterans together. (The only thing definitely excluded is the purchase of building of factories.) The law is intended to benefit practically all the members of the working class. A large number will be induced to buy farms and gardens or to add to those they already own; handworkers and small shopkeepers can have their own houses in the suburbs or small towns and even city factory workers can combine for improved city dwellings such as already exist in Berlin.⁸

b. Persons eligible: Veterans and widows of veterans between the ages of twenty-one and fifty-five, who have a right to war payments under the provisions of the law of provision for troops and of the law providing for the widows and orphans of soldiers. Payments which may be commuted, *Kriegszulage* (war allowance) fifteen marks per month and *Verstümmelungszulage* (mutilation allowance), twenty-seven marks per month. For widows, half of total allowance. Those not crippled are, of course, entitled only to war allowance.

⁸ *Vom Krieg zur Friedensarbeit*, Berlin, 1917. 3, 24.

c. The pension proper may not be commuted but remains as a steady income although it may be reduced or withdrawn with increased earning capacity. The capital payment is supposed to represent the total amount which would accrue to any veteran from payment for life of the two allowances in question. His probable length of life is calculated on the basis of the experience of the Imperial Insurance Office. As a result of this, a man twenty-one years old receives eighteen and one-half times the yearly total of the allowances due him; a man of thirty, sixteen times; of forty, thirteen and three-quarter times; at fifty-five, eight and one-quarter times, etc. The result is that a man of twenty-one, who was entitled to both war and mutilation allowances would receive 9,324 marks; a man of thirty, with the two allowances, 8,190 marks; one of forty, 6,930, etc. With double mutilation, these would be correspondingly increased.

d. Conditions safeguarding settlement: Each individual applicant must prove his ability to manage the enterprise for which he proposes to use the money and its practicability. If he purchases land, he must do it through one of the real estate associations authorized by the government. If the applicant is proved later to be unable to manage his enterprise, the total payment must be refunded and he receives his monthly allowances instead. Sometimes the government takes a mortgage on his property to insure this.

e. Managing authority: No veteran has an absolute right to capital payment. Each application is decided on its merits by a board appointed by the Ministry of War before which the proper proofs must be brought.

GENERAL CONCLUSIONS

Social workers are extremely hopeful about the results of this law, which was passed after much discussion. Its need was greatly felt but the difficulties were the calculation of a lump sum for men of different ages (dealt with by provisions under 'c') and safeguarding against the total loss of the payment through inefficiency of the recipient (dealt with by provisions under 'c', 'd', and 'e'). The chief difficulty now will be in slowness and formality of administration, since the military boards are notorious for these qualities in the matter of deciding pensions.

Great activity has been stimulated among real estate associations. There existed before the war a great many land development associations of a semi-charitable character and, since the passage of the law, many others have been formed with the definite object of assisting veterans

under its provisions. Many of the states and provinces, particularly the agricultural ones like Silesia, have formed semi-official associations. There are now thirty or more authorized associations listed in the appendix.

XII. ATTITUDE OF CRIPPLES

One of the most important things to be noted in connection with the re-education of the war cripple is the attitude of the men themselves. The nature of the patriotic appeal made to them and their own published testimony leads one to believe that there is great unanimity and docility among them. The whole spirit of the country would appear to be at such a high patriotic tension that a measure like re-education which is urged on patriotic grounds can be certain of support from every individual.

Since, however, most of the cripples to be re-educated come from the working classes, which are the least in accord with the general spirit, there is evident among them a certain amount of unrest and dissent. Pastor Ulbrich, an experienced worker and head of one of the oldest cripples homes, stands out against the claim that the injured man will go back to work as though nothing had happened. He feels that the idea of recompense for what they have gone through is becoming firmly rooted in the returned cripples, fostered by popular sympathy and that after the war the country must beware of a *Heldenpartei* (hero party) composed of returned soldiers who will insist on concessions from the government.

Slight indications of something of the sort are already evident. In June, 1916, there was founded at Hamburg the *Bund Deutscher Kriegsbeschädigten* (German War Cripples' Union). Its object was announced to be merely mutual assistance and fellowship.¹ Other smaller organizations sprang up in different parts of the country and the papers began to accuse them of socialist sympathies. It was these unions which conducted an investigation in the Rhine Province to prove the inadequacy of pensions and which maintain an office in Berlin from which a petition for higher pensions was circulated.

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 238-239.

The interests of these unions have been growing more and more political. In November, 1917, the Berlin union came to an open breach with the Pan-German party over the matter of a negotiated peace. The Pan-German party, in its propaganda for peace by conquest only, had been citing the sufferings of the war cripples and urging the country to fight to the end in order to avenge them and to carry on their work. The Berlin *Verband der Kriegsbeschädigten und ehemalige Kriegsteilnehmer* (Union of War Cripples and War Veterans) called a meeting to protest against this action of the Pan-German party.

"The speaker," says *Vorwärts*, "stood emphatically against the attempt of the Pan-Germans to entrap the veterans and war cripples by promising them a share of the booty. Instead of that, he demanded that the social program of the union of war cripples be adopted and that all veterans should have full voting privileges."

At the close of the meeting, the following resolution was adopted:

We, over a thousand war cripples and veterans, in meeting assembled, men who have risked in support of Germany our health and our lives, deny to members of the German 'Fatherland Party' the right to arrogate to themselves a special measure of love for our country. We protest against their quoting the veterans in support of their aims of conquest. We demand an early negotiated peace as soon as this may be done without injury to the nation. We demand that all class privileges be laid aside. We demand special provision for those who have sacrificed themselves at the front. (Berlin, *Vorwärts*, November 12, 1917.)

APPENDIX

I

Guiding Principles for Vocational Advice and Re-education, Summary of Pamphlet No. 2 of Imperial Committee for Care of War Cripples. Carl Heymans, Berlin, 1917.

VOCATIONAL ADVICE

I. General Principles

1. Vocational advice is the duty of civilian agencies for care of war cripples.
2. These agencies should undertake vocational advice for each cripple as a regular part of their duties, whether requested or not.

3. Vocational advice must begin as early as possible. If it has to be delayed until a man is discharged from hospital or from the army, its usefulness is much diminished.

II. Preparatory Measures

4. The hospital staff can assist by preparing the patient's mind.
5. Vocational advice is best undertaken in a man's home district. Men should be transferred as soon as possible to the hospital of their home district and the local care committee should take up the matter of advice.
6. Within the territory covered by any care committee, there should be a central office for vocational advice.
7. Trade and agricultural schools for cripples should be organized in every district and the bureau for vocational advice should work in close cooperation with these.

III. Organization of Bureaus for Vocational Advice

8. The bureau should cover not one trade, but the whole field.
9. It should have an experienced director with wide industrial knowledge.
10. Experts in different trades should be called in for all special cases.
11. Cripples should be directed immediately to the local care committee but should be advised as to work by the vocational adviser.
12. Vocational advice must always be considered in its relation to the whole cripple problem, even in consultation with specialists.
13. In large districts, the committee may appoint individual men as representatives in different parts of the district.

IV. Aim of Vocational Advice

14. Every cripple must be put back, if possible in his old position, and, if this is not possible, in his old trade.

15. If a cripple's physical condition is such that he cannot follow his old trade, he must be placed in some more specialized department of that trade or educated for such a department.

16. If the cripple cannot follow his old trade or an allied one,

- a. A new trade should be found in which labor conditions are good or for which the man is specially fitted, or

- b. A trade in which a normal man would not require all his strength or which a cripple can master with the aid of special apparatus.

17. In advising as to a trade, the effects it will have on the man's health must be considered.

18. Temporary and unskilled occupations are to be avoided.

19. The tendency toward civil service positions is to be opposed, because

- a. The state, the municipalities and the public service corporations must keep open the places of their former employees and, like the industries, cannot overload their free places with cripples.

- b. Workmen and clerks accustomed to active competition in wages will not long be content with a position in which a rise in wages is impossible.

20. The hospitals and other agencies must be prevented from educating war cripples from other trades for commercial pursuits.

21. War cripples from agricultural occupations or handicraft workers of country birth must be encouraged to return to their old residence and discouraged from settling in the cities.

V. Vocational Advice a Continuous Function

22. Vocational advice should not be confined to a single act. The adviser, through continued friendly intercourse with the cripple, must win his confidence and learn to know him on the human side as well as on the economic side, must take all the factors of the situation into consideration and only then give his advice.

23. The war cripples must be encouraged, but their hopes must not be extravagantly raised.
24. Fears and prejudices by which the cripple is hindered must be investigated and destroyed.
25. Vocational advice is advice, not command. It is, therefore, necessary to consider the cripple's tastes and desires; he should feel that it is he who is responsible for the handling of his own situation.
26. The adviser must enter into friendly relations with the cripple's dependents or other connections.
27. Vocational advice and the measures consequent upon it must be so planned that, whenever possible, the cripple's entrance into a position follows immediately on his discharge or indefinite leave of absence from the army.
28. Wherever vocational advice and placement are not under the same management, the adviser must stand in close relation to the placement agency.
29. The scope of vocational advice must extend beyond the war and beyond the immediate activities of the care committees. Plans must be made so that cripples who need advice again later on may find it to hand.
30. With special types of injury and with special trades, there must be special facilities for vocational advice. In any case, the work must not be done according to formula but must be adapted in each case to individual needs.

APPLICATION BLANK

FOR WAR CRIPPLES USED BY GERMAN LOCAL
CARE COMMITTEES OF FREIBURG IN BADEN

1. Injury and prognosis.
2. Economic prospects of patient.
3. How long probably in hospital.
4. Bed-ridden or not.

(This blank is filled out immediately by the doctor and handed to local care committee which gets other facts later.)

APPLICATION BLANK

FOR WAR CRIPPLES USED BY GERMAN LOCAL
CARE COMMITTEES OF HESSE, HESSE-NASSAU
AND WALDECK

Place.....date.....
Office to which application is made.....
Name (first and surnames).....
Born.....date.....place.....
County.....
Single, married, widower.....
Of what state a citizen.....
Place of present residence.....
Home address.....
Number of invalid card.....
Last employment.....
Name of employer.....
Address of employer.....
Length of time employed.....
Former employment (addresses of employers and length
of time employed).....
.....
.....
Trade learned.....
Certificate from re-education school or from former em-
ployers.....
.....
Special training or experience.....
Special preferences.....
.....
.....
Diagnosis.....
Treatment begun or in prospect.....
Probable duration of treatment.....

DECISION

Patient is unfitted for following occupations.....
.....
Patient is specially fitted for following occupations.....
.....
Will patient need special investigation, care or treatment
(e. g. prostheses) and how soon will this be completed?
.....
.....
Doctor's remarks.....
Remarks on convalescent care due under military provi-
sions.....
.....
Remarks on convalescent care due under provisions of
insurance law.....
.....
Remarks on placement.....
.....
.....
.....
.....
.....

GUIDING PRINCIPLES FOR LOCAL CARE

COMMITTEES

Laid down by the *Reichsausschuss der Kriegsbeschädigtenfürsorge* (Imperial Committee on Work for War Cripples).

A. Persons to be cared for:

Includes all men connected or formerly connected with German fighting forces who have suffered, because of the war, any physical or mental injury which interferes with earning capacity.

B. Purpose of care committee:

To increase the ability and opportunity of the war cripple for gainful occupation. Means used may include general information, vocational advice, vocational training, placement, temporary or supplementary medical treatment, help in settlement on land and, *if necessary, to establishing man at work*, also financial aid for him and his family. In any other case, such aid is to be asked from public poor funds or charity.

C. Responsibility of care committees:

That committee is responsible for a cripple in whose district he resided before his call to arms; it remains responsible until he is definitely established in some other district.

II

CLASSIFICATION OF TEACHING FACILITIES

A. Special courses for cripples in city schools, drawing on group of hospitals.

B. Hospitals outfitted with workshops.

C. Hospitals sending men out for instruction, but to regular schools without special courses.

D. Hospitals with rudimentary shop outfit.

ALSACE-LORRAINE

- A. Strasburg
- B. Saarbrücken
- C.
- D.

BADEN

- A. Freiburg
Heidelberg
Konstanz
- B. Mannheim
- C. Pforzheim
Karlsruhe
Baden-Baden
- D.

BREMEN

- A. Bremen
- B.
- C.
- D.

BAVARIA

- A. Munich
Augsburg
- B. Munich
Nürnberg
Würzburg
- C.
- D. Passau

BRANDENBURG

- A. Charlottenburg
Berlin
- B. Berlin (3)
Görden
- C.
- D.

BRUNSWICK

- A.
- B. Brunswick
- C.
- D.

EAST PRUSSIA

- A.
- B. Allenstein
Hindenburghaus
- C.
- D.

WEST PRUSSIA

- A.
- B. Danzig
- C.
- D.

HESSE (GROSSHERZOGTUM)

- A. Offenbach
- B.
- C.
- D.

HESSE-NASSAU

- A. Frankfurt
- B.
- C.
- D.

HAMBURG

- A.
- B. Hamburg
- C.
- D.

HANOVER

- A.
- B. Hanover
- C.
- D.

RHEINLAND

- A. Düsseldorf
Cologne
- B.
- C. Cologne-Deutz
- D.

SAXONY (KINGDOM)

- A. Leipzig
Dresden
- B.
- C. Zwickau
- D. Dresden

PROVINCE SAXONY

- A. Halle
- B.
- C.
- D.

SCHLESWIG-HOLSTEIN

- A.
- B.
- C.
- D. Altona
Flensburg

SILESIA

- A. Breslau
- B.
- C.
- D. Glatz
Neisse
Görlitz
Landshut
Schweidnitz
Liegnitz
Gleiwitz

WESTFALIA

- A. Bochum
Dortmund
- B. Bielefeld
- C.
- D.

WÜRTTEMBERG

- A. Stuttgart
Heilbronn
- B.
- C.
- D.

MECKLENBURG

- A.
- B.
- C.
- D. Reservelazarett

Totals:

A.....	15
B.....	15
C.....	3
D.....	11
Not classified because of insufficient data.....	3
Regular cripple homes which have announced readiness to take war cripples but are not reported as doing so.....	43
Grand total.....	90

III

RE-EDUCATION SCHOOLS MENTIONED IN
GERMAN REPORTS

ALSACE

Strasburg. Courses for cripples in six different city schools under care committee.
Saarbrücken. Instruction in hospitals under care committee.

BADEN

Freiburg. All hospitals in city in agreement with city schools where workshops and instruction provided for inmates for all. Instruction under direction local care committee.

Mannheim. Hospital school of Orthopedic Neurological Hospital with eight workshops mainly for occupational therapy. Instruction directed by local care committee.

Konstanz. 'Technikum', a private technical school with city subsidy conducts cripple school using its own workshops.

Heidelberg. Locksmiths' and carpenters' workshops in city thrown open for use of cripples.

Baden-Baden. Instruction in city trade schools for hospital inmates under care committee.

Karlsruhe. Under care committee.

Pforzheim. Under care committee.

Ettlingen. Trade school run by Baden state care committee using workshops of reserve hospital.

BAVARIA

All work under state government instead of care committee.

Munich. Reserve hospital Marfeld, instruction in hospital, twenty-five workshops, five hundred beds. Theoretic instruction at city schools.

Munich. School instruction in building trades for inmates of all hospitals at Royal School of Building, followed by master test. Cripples, if discharged from army, receive subsidy for maintenance from state government.

Nürnberg. Reserve hospital with workshops for fifteen trades, theoretic instruction at city schools.

Augsburg. Hospital with courses in city trade schools.

Würzburg. Courses arranged for cripples by the Unterfränkische Ausschuss des bayerischen Landeshilfvereins and held at district deaf and dumb institution.

Würzburg. König Ludwig Haus. Home for crippled children now a Vereinslazarett treating and instructing crippled soldiers. Shops and school in building.

Passau. Small school for crippled soldiers. Few trades.

Ludwigshafen. Instruction in city schools for crippled soldiers in metal and chemical work.

BRUNSWICK

Brunswick. Hospital school with eleven shops. Hospital under military authority, instruction under local care committee carried on in hospital shops and in city schools.

GRAND DUCHY OF HESSE

Offenbach. City technical school gives instruction for surrounding hospitals which accommodate 1,600. Two hundred and forty severely crippled lodged in technical school itself. Work under care committee.

MECKLENBURG-SCHWERIN

Schwerin. Reservelazarett, basket-weaving and farming as occupational therapy under military discipline.

HAMBURG

Hamburg. Marine lazarett, military reserve hospital, has workshops donated by care committee.

PRUSSIA (PROVINCE BRANDENBURG)

Berlin. Brackenlazarett auf dem Tempelhofer Felde, Workshops in hospital.

Berlin-Zehlendorf. Oscar Helene Heim. Home for crippled children, now a Vereinslazarett treating and instructing war cripples.

Berlin. City trade schools give instruction to inmates of all hospitals. Work directed by city.

Berlin. Kriegsbekleidigungsamt des Gardekörps. Clothing factory of Gardekörps gives instruction to discharged war cripples in shoemaking, tailoring, and saddlery.

Berlin. Kaiser Wilhelm Haus. Instruction for war cripples in munition work under orthopedic supervision. Private donor, military discipline.

Berlin. Frieda Hempel Heim. Small houses and gardens at cheap rent for war cripples, with instruction in gardening and handicraft.

PRUSSIA (PROVINCE BRANDENBURG)

Charlottenburg. Municipal trade schools give courses either at schools or hospitals. Direction, care committee.

Charlottenburg. Test station for artificial limbs with small workshop where ten cripples can be employed at once. Only expert mechanics taken. Direction, Society Engineers.

Nowawes. Oberlinhaus. Cripple home now acting as Vereinslazarett and taking war cripples. School and workshops on premises.

Görden. Military reserve hospital with special orthopedic department. Twenty-five workshops, eight hundred men. Direction, military authorities.

Neukölln. Hospital school.

PRUSSIA (PROVINCE EAST PRUSSIA)

Augeburg. Bethesda, cripple home with eight shops and farming facilities now

acting as Vereinslazarett and taking war cripples for treatment and instruction.

Hindenburghaus. Cripple home with one hundred and twenty beds and five workshops now reserve hospital taking war cripples. Direction, military authorities.

Allenstein. Military reserve hospital taking war cripples for treatment and instruction. Direction, military authorities.

Königsberg. Courses for cripples in all city schools. Direction, local care committee.

PRUSSIA (PROVINCE HANOVER)

Hanover. Annastift and Wilhelm-Augusta-Viktoriastift. Regular cripple homes with shops and school now acting as Vereinslazarette and taking war cripples.

PRUSSIA (PROVINCE HESSE-NASSAU)

Fulda. Herz-Jesu-Heim. Cripple home with nine workshops acting as Vereinslazarett and taking war cripples.

Frankfurt am Main. Friderichsheim. Cripple home now used as reserve hospital and entirely given over to war cripples. Four shops.

Frankfurt am Main. City technical schools give courses for cripples, either in schools or hospitals. Direction, care committee.

Kassel. Local care committee manages instruction, partly in hospitals and partly in city schools.

Frankfurt. Institut für Gemeinwohl, hospital turned over to military authorities by local care committee. Instruction in city schools; direction, care committee.

PRUSSIA (PROVINCE POMERANIA)

PRUSSIA (PROVINCE POSEN)

PRUSSIA (PROVINCE RHENISH PRUSSIA)

Cologne. Courses in city schools for inmates of all hospitals. Direction, care committee.

Cologne. Stiftung Dr. Dormagen. Cripple home acting as Vereinslazarett and taking war cripples.

Cologne-Deutz. Festungslazarett under military discipline, maintains cripples dur-

ing convalescence while they go out to work in the city. Direction, military authorities.

Düsseldorf. Large school for wounded in school buildings, specially donated by city, taking cripples from fifty hospitals. Direction, care committee.

Coblenz. Orthopedic Hospital School in Barmherziger Brüder Hospital. Shops for occupational therapy. Direction, military authorities.

PRUSSIA (PROVINCE SAXONY)

Halle. Instruction in City School for Handicraft. Direction, care committee.

PRUSSIA (PROVINCE SCHLESWIG-HOLSTEIN)

Stellingen-Altona. Cripple home with twelve workshops acting as Vereinslazarett and taking war cripples.

Flensburg. School for cripples, not described.

PRUSSIA (PROVINCE SILESIA)

Breslau. Pestalozzi School, fourteen workshops and twenty-six business courses. Gives instruction for cripples from all surrounding hospitals; direction, care committee.

Glatz. Hospital school.

Neisse. Hospital school.

Görlitz. Hospital school.

PRUSSIA (PROVINCE SILESIA)

Landshut. Hospital school.

Schweidnitz. Hospital school.

Liegnitz. Hospital school.

Gleiwitz. Hospital school.

PRUSSIA (PROVINCE WESTPHALIA)

Bochum. Three hospitals with shops built specially for war cripples by local committee. Seven hundred and twenty patients. Instruction at hospital workshops, factories in the town and trade schools. Direction, care committee.

Bigge. Josephs-Krüppelheim. Cripple home with school and shops acting as Vereinslazarett and taking war cripples.

Dortmund. Courses in city schools for inmates all hospitals. Direction, care committee.

Bielefeld. Bodelschwingsche Anstalt. Cripple home with twenty-four workshops now acting as Vereinslazarett.

PRUSSIA (PROVINCE WEST PRUSSIA)

Danzig. Kaiser-Wilhelm-Haus für Kriegsbeschädigte. Reserve hospital with shops and school. Direction, military authorities.

Hakelwerk. Hospital with shops and school.

SAXONY

Dresden. Courses for inmates all hospitals in City Business School, Royal School of Handicraft, Royal School of Building, Technical High School. Direction, care committee.

Dresden. Krüppelhilfe, Home for crippled children without shops. Mentioned as taking war cripples.

Leipzig. Courses in city school for manual training. Direction, care committee.

Leipzig. 'Technikum' for printers gives special courses for war cripples. Direction, care committee.

Zwickau. Courses in city schools for war cripples. Direction, care committee.

Rosswein. School of Locksmiths gives special courses for cripples. Direction, care committee.

IV. AGRICULTURAL SCHOOLS

BADEN (2)

Villingen. Course, theoretical and practical, fifty-four men. Instruction and maintenance free to needy ones, to others only instruction.¹

BAVARIA (4)

Instruction for farmers and gardeners at Landsberg am Lech, Weißenstephan, Weithochheim, Neustadt.²

¹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 380.

² *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 173.

*Plankstellen.*³ Thirty leg amputations, fifteen arm.

BRANDENBURG (2)

Berlin-Dahlem Farm for two hundred pupils run by city at Struveshof Görden, Reserve Hospital. All farming authorities and officials interested. Large farm, ten pupils.

WEST PRUSSIA (1)

Grosstarpen, near Graudenz. Farm gives instruction to men under treatment at Graudenz military hospital.

EAST PRUSSIA

Hindenburghaus. Courses in bee-keeping and gardening; military discipline.

Allenstein. Farm school at Kortau under military discipline.

HESSE (1)

Offenbach. Gardens of city hospital and poor-house used for instruction.

HANOVER (1)

Schullazarett, Schwanenburg, under military authority.

POSEN (2)

Gärtnerlehranstalt, Koschmin.

Kameradenheim free,⁴ non military.

PRUSSIAN SAXONY (3)

Bad Lauchstedt. Care station specially established to teach farming by states of Saxony and Anhalt. Has farmland and machinery.

SAXONY (KINGDOM)

Leipzig. Regular agricultural institute open for cripples.⁵

Dresden. Four weeks' course started by Landwirtschaftskammer and supported by local care committee.

³ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 324.

⁴ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 41-42.

⁵ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, viii, Monatsblätter, p. 40.

WESTFALIA (1)

Bielefeld. Bodelschwingsche Anstalt, with farm and one hundred and sixteen acres of land.

SCHLESWIG-HOLSTEIN

Flensburg, Segeburg, farm schools.

BRANDENBURG

Königsberg—Neumark, one year course for farmers. Institute of Chamber of Agriculture, Brandenburg. Examinations before Royal Examination Board—high school education required.

SCHOOLS FOR THE ONE-ARMED

ALSACE (6)

Strasbourg.

BADEN

Baden-Baden. Soldatenheim. Special shoe machinery for one-armed.

Heidelberg. School under Baden state committee. Workshops mentioned for locksmiths and carpenters.⁷

BAVARIA

Munich. (No further particulars.) (8)

Würzburg. State Deaf and Dumb Institute, courses and exercises.

Kaiserslautern.

Ludwigshafen.

Nürnberg.

Erlangen.

HESSE-NASSAU

Frankfurt-am-Main. (No further particulars.)

HANOVER

Five masonic lodges have started one-armed school in new institution for blind; it is part of military organization; soldiers sent directly from army corps. Instruction, clerical and commercial.⁹

SAXONY

*Dresden.*¹⁰ Vereinslazarett with forty beds; farm instruction at hospital; trade instruction in city schools.

Chemnitz ((dist. xix army corps). Free courses arranged by committee in city technical and continuation schools and grammar school, also orthopedic workshop.¹¹

Westphalia. Course at Bochum School for Wounded.¹²

V.

EMPLOYERS' AND WORKMEN'S ASSOCIATIONS
ASSISTING IN THE PLACEMENT OF WAR CRIPPLES

1. Employers' Associations, members of the Vereinigung Deutscher Arbeitgeberverbände (Federation of German Employers' Associations):

Federation of German Metal Manufacturers, Berlin, with twenty-four local associations.

Arbeitgeberverband für den Bezirk der Nordwestlichen Gruppe des Vereins Deutscher Eisen und Stahl-industrieller (Employers' Association for the District of the Northwest Group of the Union of German Iron and Steel Manufacturers); Headquarters, Düsseldorf, with twelve branch associations. Industrieller Arbeitgeberverband (Industrial Employers' Association), Hanover.

Arbeiterschutzbund Deutscher Schlossereien und Verwandter Gewerbe (Employers' Protective Association of the German Locksmiths and Allied Trades); Headquarters, Berlin, with sixteen branches.

Arbeitgeberverband für Handel, Industrie und Gewerbe (Employers' Association for Commerce, Industry and Trade), Königsberg.

Ortsgruppe Stettin des Vereins der Industriellen Pommerns und der benachbarten Gebiete (Stettin Local Group of the Manufacturers' Union for Pomerania and Environs), Stettin.

Arbeitgeberverband der Nadelindustrie von Aachen und Umgegend (Employers' Association of Needle Manufacturers for Aachen and Environs), Aachen.

Arbeitgeberverband der Zentralheizungsindustrie für Rheinland und Westfalen (Employers' Association for the Steam Fitters' Trade in Rhineland and Westphalia), Düsseldorf.

⁶ *Korrespondenz für Kriegswohlfahrtspflege*, Berlin, 1916, ii, 35.

⁷ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 25, 575.

⁸ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 173.

⁹ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1916, ix, 44.

¹⁰ *Zeitschrift für Krüppelfürsorge*, Leipzig, 1915, Monatsblätter, p. 40.

¹¹ *ibid.*

¹² *Zeitschrift für Krüppelfürsorge*, Leipzig, 1917, x, 77.

Genossenschaft selbständiger Gold, Silber und Metallschläger für Dresden und Umgegend (Association of Independent Gold, Silver and Metal Workers for Dresden and Environs), Dresden.

Verband Deutscher Zentralheizungsindustrieller (Union of German Steam Fitting Industries), Berlin.

2. Workmen's Associations:

Arbeitsgemeinschaft für das einheitliche Angestelltenrecht.

Soziale Arbeitsgemeinschaft der kaufmännischen Angestellten (Arbitration Board for Mercantile Employees).

Deutscher Werkmeister-Verband (Union of Master Workmen).

Generalkommission der Gewerkschaften Deutschlands (General Commission of the German Unions). Socialist.

Gesamtverband der christlichen Gewerkschaften Deutschlands. (Federation of German Christian Unions.)

Verband der deutschen Gewerkvereine Hirsch-Duncker. (Federation of German Unions.)

VI

AUTHORIZED LAND SETTLEMENT SOCIETIES

ALSACE-LORRAINE

ANHALT

BADEN

BAVARIA

Landessiedlungsstelle in Ministry of Interior to supervise whole matter.

BRANDENBURG

Berliner Baugenossenschaft. Furnishes land. Eigene Scholle. Frankfurt a. Oder.

Berliner Siedlungsgenossenschaft.

Gross Berlin. Ausschuss für Ansiedlung Kriegsbeschädigter. Supplies no land of its own, merely acts as go-between in making arrangements. Organized by burgomaster, secretary of state and landesdirektor.

BRUNSWICK

FREE CITIES

HESSE (DARMSTADT)

Zentralwohnungsverein. Supplies land and houses.

HESSE-NASSAU

Hessische Siedlungsgesellschaft, Kassel. For information.

HANOVER

Hannoversche Siedlungsgesellschaft (official for whole province).

LIPPE

MECKLENBURG

Mecklenburgsche Ansiedlungsgesellschaft. For information.

OLDENBURG

Oldenburg. Grossherzogliche Verwaltung des Landeskulturfonds.

POMERANIA

Pommersche Landgesellschaft (official for whole province).

POSEN

Königliche Ansiedlungs Kommission für Posen und West-Preussen. Gutsbetrieb mit Kriegsbeschädigten on estate near Bromberg. Men trained to agriculture and paid. Supported by care committee, war and agriculture ministries and farm machine industries.

PRUSSIA

Königsberg. Ostpreussische Landgesellschaft (information).

Gerdau. Gerdauer Siedlungsgesellschaft. Land and houses near Gerdau.

PRUSSIA (WEST)

Königliche Ansiedlungskommission für Posen und West-Preussen.

RHINELAND

Siedlungsgesellschaft for whole province to be founded by Landwirtschaftskammer. Rheinisches-Heim Gesellschaft. Provides land and houses. Union of many private societies. Bonn.

SAXE-ALTENBURG

SAXE-COBURG-GOTHA

SAXE-MEININGEN

SAXE-WEIMAR

Weimar. Thüringische Landesversicherungsanstalt.

SAXONY (PROVINCE)

Halle. Sachsenland (information).

SAXONY

Leipzig. Sächsische Kriegersiedlungsgenossenschaft. Has bought land and built houses.

Frauentank. Works with Heimatdank looking up cases and acting as intermediary agent.

Chemnitz. Chemnitzer Ausschuss für Kriegsbeschädigte.

SCHLESWIG-HOLSTEIN

Kiel. Holsteinsche Höfebank.

SCHWARZBURG-SONDRERSHAUSEN**SILESIA**

Schlesische Landgesellschaft. Has bought twenty-one hectares and presented for small holdings. Breslau. Royal supervision.

Landesversicherungsanstalt. Lends money for land purchased to certain classes of insured persons.

Neustadt. City government has bought twenty-one hectares to sell as small holdings.

WESTPHALIA. Westfälischer Verein zur Förderung des Kleinwohnungswesens. Intermediary official for whole province.

Münster. Siedlungsgesellschaft Rote Erde.

WÜRTTEMBERG*General Agencies for Whole Nation*

Deutscher Verein für ländliche Wohlfahrts- u. Heimatpflege has information office for land settlement.

Auskunftstelle für Ansiedlungswesen. Berlin. Schutzverband für deutschen Grundbesitz.

Royal Prussian 'Ansiedlungskommission', Posen. Supervises all work in Prussia and recommends societies proper for use.

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**Publications of the
Red Cross Institute for Crippled and Disabled Men**

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**Provision for Vocational Re-education of
Disabled Soldiers in France**

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Crippled and Disabled Men



**The Red Cross Institute for Crippled and Disabled Men
311 Fourth Avenue New York City**

Provision for Vocational Re-education of Disabled Soldiers in France

Vocational re-education for disabled soldiers, as it is carried on in France, is not the realization of a comprehensive plan prepared in advance by the government, but is the result of various isolated attempts to meet a great national emergency. In the autumn of 1914, large numbers of men wounded in the retreat from the Belgian border and the battles of the Marne and the Aisne were being turned out from the military hospitals. They were, perhaps, cured of their wounds, but they were unfit for further military duty, and were therefore discharged from the army. That many of them were equally unfit for civilian life did not at that time concern the French government. It bestowed upon them the tiny pension allowed under a long-standing law and sent them to their homes. How to help them to earn a decent living and to become again useful, self-respecting citizens became then questions for each community to solve.

Rise of Re-educational Schools

A solution that went deeper than mere charitable giving was first worked out in the city of Lyons through the initiative and foresight of the mayor of the city, M. Édouard Herriot. M. Herriot proposed that the city should organize a school where men incapable of resuming their former occupation should be taught a new trade compatible with their disability. He secured for his project the approval of the Municipal Council, and on December 16, 1914, he opened a school. Three pupils only were enrolled at the beginning, but applications came in rapidly, and by May of 1915 the school was full to overflowing. A second school was then established in the suburbs of the city.¹ These

two institutions—the first, known as the École Joffre, and the second, called the École de Tourvielle—have served as models for most of the other schools since formed in nearly every city of importance in France.²

Shortly after the organization of M. Herriot's pioneer trade school for disabled men, the national government recognized the need for work of this kind and took steps to create a national school of re-education. A home for industrial cripples at Saint-Maurice on the outskirts of Paris was taken by the government for this purpose, and in May, 1915, was opened as the *Institut national professionnel des invalides de la guerre*. The government made this *Institut* a model school capable of training 300 men, but it left the establishment of similar schools throughout France to other agencies.

The realization that the problem of the *mutilés* could be solved by re-education soon became general, and various public and private agencies began to organize re-educational institutions. In Paris and in the provinces, national associations for aiding the *mutilés*, departmental and municipal governments, local committees, chambers of commerce, trade unions, and private philanthropists took up the work. All through 1915 schools of various kinds sprang up throughout the country.³

The Minister of Commerce was one of those who early perceived the need of providing trade training for discharged soldiers. He proceeded, therefore, to do everything possible to adapt the existing vocational schools under his jurisdiction to the needs of disabled men. Under instructions from him the department of Technical

¹ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, pp. 113-129.

² *Ibid.* and Bittard, A. L. *Les écoles de blessés*. Paris, 1916, pp. 68-125.

³ Hirschfeld, Gustave, *Tourvielle*, Lyon, 1917, pp. 46-49.

Education made an examination of the trade schools to ascertain in what measure they could be utilized for re-education. The result of this examination was a report, dated June 3, 1915, to the Minister of Commerce, suggesting a plan and program for the work.⁴ The report stated that not all the schools of technical education could be utilized, inasmuch as some had no capacity for additional pupils, or taught trades not suitable to disabled men, or could not undertake the placement of any more apprentices in their trades. It was found, however, that a large number of schools could give instruction to *mutilés*. In some schools it would be possible to receive men into the same classes as the regular pupils. In others special sections for disabled men could be formed. In these last cases the aid of the municipality or of the trade union was sometimes, but not always, necessary to cover the expense of the additional instruction and equipment. The directors of a few schools undertook to organize separate schools for the *mutilés* under the control of the Minister of Commerce and to make them new centers of special technical instruction.

Ten months afterwards this program was largely realized.⁵ In national schools of art and crafts, national trade schools, and practical business and industrial schools, courses were arranged to teach disabled men how to be self-supporting.

The Minister of Agriculture also attempted to organize re-education in the existing agricultural schools. Unfortunately many of the most conveniently situated schools had already been taken over for hospitals, and could not be used for instruction. Some of these have only recently been given back. The Minister of Agriculture has, however, organized sections for the *mutilés* wherever he could find suitable accommodations.⁶

The schools of all kinds now in operation for the re-education of disabled soldiers number more than 100. Some have no more than a dozen pupils, while the larger ones can accom-

modate from 200 to 300 men.⁷ A list of these schools will be found in the appendix.

Centers of Physiotherapy, Prosthetic Equipment, and Re-education

The great majority of schools thus formed by public or private initiative had no connection with military hospitals and received as pupils only discharged soldiers. The National Institute at Saint-Maurice was, however, in close proximity and connection with a large hospital, and its pupils were not only discharged soldiers but also men undergoing treatment in the hospital.⁸ There were two other notable exceptions to the rule in two schools organized by the *Union des Colonies Étrangères*, a group of foreign residents in Paris, who have raised large sums for the establishment and maintenance of schools for French soldiers. One of their schools was organized in the Grand Palais, in Paris, where there is a large physiotherapeutic hospital; another is connected with a convalescent depot for amputation cases at Maison-Blanche, Neuilly-sur-Marne. In both of these schools the pupils are inmates of the adjoining hospitals.⁹

In 1916 the Government became convinced that vocational re-education should be started before discharge, and it decided therefore to organize schools in connection with the large physiotherapeutic hospitals and amputation depots scattered over the country. The decision was made public in a decree issued by the Under-Secretary of State for the Medical Service (corresponding to our Army Medical Service), dated June 2, 1916.¹⁰ As the government did not wish to enter into competition with the schools already running or to duplicate their work, the Under-Secretary of State announced later that he would make use, wherever possible, of the schools in the neighborhood of the hospitals by annexing these schools to the hospitals.¹¹

⁷ Harper, Grace S. Vocational re-education for war cripples in France. New York, 1918, p. 13.

⁸ Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, pp. 95-96.

⁹ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, pp. 202-204.

¹⁰ *Journal des mutilés, réformés et blessés de guerre*. Paris, 1916, No. 12, p. 4.

¹¹ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 50-51.

⁴ Bittard, A. L. Les écoles de blessés, Paris, 1916, pp. 110-111.

⁵ *Ibid.*, pp. 112-122.

⁶ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, pp. 205-206.

He has also stated that he intends to establish hospitals of physiotherapy in connection with every re-educational school doing effective work.¹² These plans are being gradually carried out.

At the present time, as a result of the new policy, there is in every military region of France a hospital, or hospitals, of physiotherapy to which has been annexed a school of vocational training. Eleven of these combined institutions are connected with shops for manufacturing artificial limbs and other appliances.¹³

According to the order issued by the Under-Secretary in June, 1916, a man needing functional treatment for his injury is to be sent from the general hospital to the physiotherapeutic hospital into which that general hospital empties, or to the one nearest his home; a man needing an artificial appliance is to be sent to the corresponding institution of prosthetic equipment (*centre d'appareillage*). While undergoing the needed treatment, or while waiting for his appliance, he can commence his trade training in the annexed school.¹⁴ A difficulty encountered with this system is that when a man has received all the functional treatment which will benefit him, or when he has received his appliance, he expects his discharge. On receiving it, he leaves the institution and breaks off his course of training. In order to overcome this difficulty, the Under-Secretary of State for the Medical Service has stated that he will, when the case demands, defer the discharge until the course of training is complete.¹⁵

The model hospital of physiotherapy in France has been installed by the government in the Grand Palais in Paris. Treatment administered there and in similar institutions is designed to restore the greatest possible use of their limbs to men who have received so-called functional injuries. The term 'functional re-education' is applied to this treatment. It embraces all the different curative methods included in the general term physiotherapy, such as baths,

massage, electricity, heat, radium, and exercising apparatus. In this field French doctors are said to have developed a high degree of skill. A study of French methods would have undoubted value for American physicians, but as it is a medical matter, the subject will not be treated in this report.

The kind of artificial limbs provided is, on the contrary, a matter of vital interest to everyone interested in the subject of trade training for war cripples, and will therefore be covered in a later section.

Interests of the Different Ministries

The National Institute at Saint-Maurice is under the control of the Minister of the Interior, and is supported entirely by funds placed by the National Assembly at the disposal of the Minister of the Interior.¹⁶

The schools created by public bodies—departments, municipalities, chambers of commerce, hospitals, and the like—and those which after their creation by private committees, have been placed under the administration of a public body, are supported in part by the body which established or now administers them, and in part by the state. The public body must provide the necessary workshops and a building to house the pupils or must be responsible for placing the apprentices in private shops and lodging them in boarding houses or families. Its resources are subscriptions and contributions from official and private sources. Any further funds that may be necessary are provided by the state through a subvention from the Minister of the Interior, which is paid out of the credit voted to the Minister of the Interior by the National Assembly.

In order to obtain this subvention from the Minister of the Interior, re-educational institutions must submit for his approval their projected budget, their program, and particulars of their organization. They must give among other things detailed information on the trades which they can teach, the probable number of their pupils, their system of instruction, the weekly

¹² *Ibid.*, p. 54.

¹³ Harper, Grace S. Vocational re-education for war cripples in France. New York, 1918, p. 31.

¹⁴ *Journal des mutilés, réformés et blessés de guerre*. Paris, 1916, No. 12, pp. 4-5.

¹⁵ Office national des mutilés et réformés de la guerre. Bulletin, No. 1. Paris, 1917, p. 51.

¹⁶ Norman, Sir Henry. The treatment and training of disabled and discharged soldiers in France. London, 1917, p. 4.

teaching schedules, the equipment of the schools, the length of apprenticeship, probable wages at the end of the apprenticeship, and the degree and kind of disability compatible with the trades taught.

The state subvention is not limited, however, to schools established or administered by public bodies. It may be secured by schools organized and administered by societies or individuals. In order to obtain the subvention, such schools must present a statement showing their program, organization, resources, and probable expenses. If the state decides to grant the subvention, the amount is made to depend on the number of pupils and the social and economic value of the work undertaken.

By granting a subvention the state does not bind itself to renew the grant in whole or in part. By accepting such a grant, however, the school is bound to submit to government inspection.

The schools and courses organized for disabled men by the Ministers of Commerce and Agriculture receive grants from the Minister of the Interior under the same conditions as other schools.¹⁷

The Minister of the Interior, therefore, through his disposition of the funds voted by the National Assembly for the support of re-educational institutions, exercises a control over the greater number of the schools for disabled men in France. It is true that an Interministerial Commission, composed of representatives of the Ministries of the Interior, War, Navy, Public Instruction, Commerce, Agriculture, Labor, and Finance, was formed in April, 1915, to study the whole question of re-education and to assign Parliamentary funds, but in actual practice this Commission has been little more than an advisory board under the control of the Minister of the Interior.¹⁸

National aid to the *mutilés* was not, however, completely and formally centralized in the Ministry of the Interior. The Ministries of Commerce and Agriculture shared in the work by reason of their control over the technical policies

of their schools. The Minister of War, through the Under-Secretary of State for the Medical Service, was concerned in the re-education of men not yet discharged from the army, for these men were still nominally soldiers. The Minister of War had, also, founded a placement bureau. The Ministry of Labor participated because the placing of disabled men in trades was obviously a labor question.¹⁹

This division of authority resulted often in overlapping or conflicting activities, in the failure to give a common direction to the work, and in a waste of money and effort.²⁰ To prevent the continuance of these conditions it was clearly necessary to combine the activities of the different ministries in reference to disabled soldiers into some central coordinating department. It was equally clear that there was need of a central board or bureau to unify the aims and methods of the many schools that had sprung up during the first year and a half of the war. Through the efforts of these schools opportunities for re-education had been opened to disabled soldiers in nearly every district in France. Many of them had accomplished remarkable results. But they were local and disparate reactions to an emergency and could not be regarded as a uniform system of re-education.

The National Office

With this need of coordination in mind, the Ministers of War, Labor, and the Interior created in March, 1916, by an interministerial decree, the *Office national des mutilés et réformés de la guerre*.²¹ This National Office comprises a central office with headquarters at Paris, and departmental offices or committees located in the eighty odd *départements*, or administrative districts of France. The function of the central office is to coordinate the work of re-education all over the country; that of the departmental offices to see that the work done in the several departments is in harmony with the plans of the central office and has internal unity. The ac-

¹⁷ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 7-8.

¹⁸ Todd, John S. A report on how France returns her soldiers to civilian life, in *American Journal of Care for Cripples*, New York, 1917, v, 30.

¹⁹ Norman, Sir Henry. The treatment and training of disabled and discharged soldiers in France. London, 1917, p. 4.

²⁰ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 3-4.

²¹ The following account of the *Office national des mutilés et réformés de la guerre* is based on its Bulletin No. 1, Paris, 1917.

tivities of the central office are divided among a Committee of Administration, a Committee of Re-education, and a 'Committee of Improvement', the last being a group of eminent men and women connected with re-educational work who look after the general interests of the *mutilés*.

The Committee of Administration is made up of representatives from the Ministries of War, Labor, and the Interior—two from each Ministry. It has two presidents, the Minister of Labor and the Under-Secretary of State for the Service of Health. Serving as vice-presidents are the Director of Statistics, the Director of the Bureau of Public Aid, and the head of the Pension Bureau.

REGISTRY OF DISABLED MEN

As a basis for intelligent effort on behalf of the *mutilés*, the Committee of Administration has undertaken to keep a registry of every invalided soldier. To this end it has prepared a registration blank on which can be indicated a man's residence, his dependents, his civil or military status, his schooling, the nature of his disability, his former occupation, the re-education, if any, that he has received, and the kind of employment he desires. This blank is filled out by the Medical Service for every man in hospital before he leaves. To it is attached a card of 'medical observation', describing his prosthesis if he has one, his functional capacity, and his aptitude for vocational re-education. The blank and the card are then sent back to the National Office. When a man finds employment, a placement card describing his situation completes the record. In order to include in the registry men who were discharged from hospitals before this system was started, the National Office has asked the prefects of departments to see that the disabled men in their departments fill out the registration blank and return it to the Office. The Office asks also the re-educational schools to supply facts from their records. In these ways an effort has been made to obtain some information about every pensioned soldier listed in the *Journal officiel*.

INVESTIGATION AMONG EMPLOYERS

Along with this registration work, the Committee has gone into the question of possible

occupations for men of various disabilities. By means of extensive inquiries among placement agencies, labor inspectors, and manufacturers, it has been able to draw up tables showing on the one hand the occupations open to men with all the different disabilities, and on the other the disabilities compatible with different occupations. The investigation brought to light many cases in which men who had suffered industrial accidents were earning good livings. These cases the Committee has held up as encouraging examples to the victims of the war.

The manufacturers have also been informed of ways in which they may help in the rehabilitation of disabled soldiers. It has been suggested to them that they reserve a certain number of places for soldiers; or, if the work in their shops is unsuited to cripples, that they introduce the special devices which have been invented to adapt machinery to men of various disabilities. Large industrial concerns are asked to install special workshops in which war cripples can serve an apprenticeship in either their old trade or a new one.

INVESTIGATION OF SCHOOLS

The Re-education Committee of the National Office is a continuation of the old Interministerial Commission and has the same duties; namely, to study the subject of re-education in all its aspects and to advise the Minister of the Interior in the matter of subventions. In order to obtain precise information about the work of the various schools, the Committee sent out twice in 1916 a questionnaire asking the schools for the details of their organization and accomplishments. The information desired covered the following points: the number of boarding and day scholars in the school, the composition of its teaching and directing staff, the machinery and tools used, the school's financial situation (receipts and expenditures), the trades taught, the number of disabled men re-educated during the last six months, the number of days of attendance, the list of men placed in positions on the completion of their course, with a note to indicate whether these men were placed in their former trade or in a new one. Analysis of these answers has given the National Office a general

view of the state of re-education in France. A repetition of the investigation will enable the Office to follow the progress of the work. It will also give ideas for the future. It will, for example, give definite facts by the light of which the Office can decide whether new schools should be organized, and whether a certain kind of institution should be developed at the expense of another.

The Committee of Improvement is composed of the members of the Committee of Administration, of certain senators and deputies who have shown their interest in the problem of the *mutils*, and of the heads of prominent aid societies for the *mutils*. It endeavors to improve the legal status of disabled men and to secure their social betterment.

PROGRAM FOR CENTERS OF READAPTATION

The three Committees of the National Office, united in a general session, have drawn up a plan for a system of re-education to be spread over the whole of France. There should be, they have said, in every important part of France, a 'center of readaptation', by which they meant a group of those activities by which wounded men are restored to functional health and economic independence. In most of the districts this group was not to be localized in one town or city, but was to be distributed over several. A complete center of readaptation should comprise (a) a hospital, or hospitals, of physiotherapy, where the invalided soldier receives his functional re-education and finishes his treatment; (b) an institution of prosthetic equipment, where artificial limbs are made and distributed; and (c) a school, or schools, of re-education, where there is provided agricultural, commercial, or trade training. The Office has grouped all the schools in France into thirty of these centers, and has defined clearly which departments should be tributary to each center. In practically every case each center includes several schools, but in a number of instances several centers depend upon a common institution of prosthetic equipment. It is recommended that the number of these institutions be increased, and that there be a considerable addition to the number of local prosthetic workshops for repairs, where the

mutils can have their appliances repaired or altered with little inconvenience to themselves.

DEPARTMENTAL COMMITTEES

The composition and functions of the departmental and local committees have been set forth in a notice issued by the National Office, dated June 30, 1916. In general the committees shall consist of representatives of different civil and military administrations and certain other interests. For instance, the Minister of Labor may be represented by the local labor inspector and by the head of the departmental employment bureau; the Minister of War, by a delegate of the general in command of the regional subdivision, by an officer of the pension bureau, and by an army medical officer. The departments of agriculture and education will be similarly represented. Other members of the committee are to be chosen from medical men, employers' associations, trade unions, insurance societies, and rural credit banks. Members will be appointed by the prefect of the department and the president of the Committee shall be the prefect, or a person delegated by him. Existing departmental committees will be gradually reconstituted to represent these interests.

The first task of the departmental committees is to see that each wounded soldier receives the training of which he is in need. It is recognized that each man should be offered a chance to acquire a trade suited to his capacities, and that every effort should be made to induce him to take advantage of the opportunity. To this end representatives of the committees call on the men in hospitals and point out the advantages of trade training. If the visitors are men of the same trade as the injured man, they can often convince him of the possibilities for work still open to him.

A second task for the departmental committees is to investigate the labor situation in order to discover which trades are least crowded, and in which, therefore, disabled men will have the best chance of finding employment.

Each departmental committee is expected to maintain close relations with the re-educational school, or schools, in the department. If no school exists in the department, and if there is

none in a neighboring department which can serve the purpose, it is the duty of the committee to organize a school. The National Office will inform the committee of what cooperation and support in organizing the school it can expect from the state. The National Office recommends that the committee try to make it possible for men to begin their vocational training while they are receiving functional re-education.

The notice issued by the National Office states further that the departmental committee should open a bureau of information to maimed men on the subject of any new inventions or improvements of existing apparatus which come to its notice. It should also give out information to help men to understand the workings of any laws from which they might benefit. For instance, to the man who decides to settle on the land it should explain the system of rural credits; to the town workman, the laws relative to cheap dwellings, insurance, and workmen's pensions. Any new laws passed by parliament concerning the *mutilés* should be made known to them. When the work of aiding the *mutilés* in a department is too extensive for a single committee there should be organized local committees having the same relationship to the departmental committees as these have to the central office.

While the excellent plans for an adequate and uniform system of re-education which have been worked out by the National Office have not all been carried into effect, they show what French re-educational experts hope to accomplish, and the methods they consider best to employ. Greater authority will have to be given to the National Office if it is to realize its program.

No mention has been made in this section of the placement activities of either the central office or the departmental committees, since the subject of placement is to be considered in a later section.

Schools: Methods and Organization

METHODS OF PROVIDING INSTRUCTION

Almost all of the schools in France are boarding-schools, and comprise workshops, classrooms, dormitories, and dining-halls. M. Herriot, acting on the principle that good living makes men capable of good work, adopted the boarding

school, or *internal*, system for his school at Lyons. A majority of the schools afterwards formed followed his example. This system is generally believed to be the best suited to the needs of the French *mutilé*. The arguments in its favor have been summed up by Dr. Carle, the first physician-in-chief of the Lyons schools, as follows: "The advantages are incontestable. It affords an opportunity for complete supervision, and for influencing the pupils morally as well as mentally. It assures continuous work under the same masters. It makes discipline more effective since there is a single authority over the men. Principles of hygiene and right living can be inculcated, and a better chosen diet can be furnished than is supplied in any workmen's boarding-house. Finally, teachers and directors are enabled to know their pupils not only as workmen but as men, and are therefore better able to help them through the difficulties and discouragements of the early period of training."²²

The National Institute at Saint-Maurice and the large schools at Bordeaux, Montpellier, Saint-Étienne, and Rouen are examples of the successful working of this system. Organized as *internats*, such schools nevertheless receive as *externes* men living in the town and in the adjoining convalescent institutions.²³

The comparatively few day schools which exist are largely guild schools which have opened their doors to disabled men.²⁴ Among these are the workrooms for *mutilés* organized in the rue des Épinettes in Paris by the unions of tailors and shoemakers, and the special courses started in their own school for apprentices by the union of jewelry makers. Some other schools organized in Paris by private philanthropists have also chosen to be purely *externats*. Mme. David Weill's school for woodworking is one, and the École Rachel for mechanics, founded by M. Rosenthal, is another.²⁵ These schools furnish

²² Carle, M. Les écoles professionnelles de blessés. Lyon et Paris, 1915, p. 28.

²³ Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, p. 97.

²⁴ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 159.

²⁵ Weill, Mme. David. Les mutilés et estropiés de la guerre dans la menuiserie et quelques autres industries du bois. Paris, 1917, p. 3.

École Rachel. Rapport. 1917.

excellent instruction, but they are unable to supervise the living conditions or habits of their pupils. There is danger under these circumstances that men living in cheap boarding-houses will be distracted from their work by the temptations of the town and will become irregular in their attendance or discontinue their training altogether. Or an offer of employment which promises immediate support may cause them to give up the training which would place them eventually in a much better situation. Some of the disadvantages of the day school are nullified when the men live in the town with their families.²⁶

A third type of school, or rather a third method of furnishing instruction, consists in placing men as apprentices in private shops, and in providing living accommodations for them in a general lodging or boarding house. A lodging house of this kind is maintained in Paris, at 4 rue Rondelet, as an annex of the National Institute of Saint-Maurice, for the benefit of men who wish to learn trades not taught at Saint-Maurice. Special arrangements are made by the National Institute with the employers in order to assure to the apprentices a favorable reception and good instruction.²⁷ The system has also been established at Tours, where the re-education work was organized by an association known as the *Assistance aux convalescents militaires*. Excellent results have been achieved here by reason of the thorough supervision maintained over the apprentices by the director of the work.²⁸

There also exists the system of placing men as apprentices in private shops without providing living accommodations for them. Aid societies which adopt this method of helping men to learn a trade grant them a daily allowance for their maintenance during their period of training. The *Fédération nationale d'assistance aux mutilés* and the *Aide immédiate* have helped men in this fashion.²⁹

Many objections have been urged against the apprenticeship system by the advocates of the schools. Certain advantages in the system are

conceded: workshops do not have to be acquired and fitted up; an infinite variety of trades can be taught; there is immediate placement; and the men live and work under more or less normal conditions. But the prevailing opinion is that the disadvantages outweigh the advantages; that trade training can be profitable to disabled men only when it is carried on in a regular school. Unless men are housed in an institution, there is a complete absence of supervision over their habits of life. Irregular attendance and an interrupted course are the danger here, as they are in a day school. Furthermore, men placed with private employers may or may not secure good instruction. In order to make sure that each one of, say, a hundred men placed with private employers does receive the proper training there must be a very complete system of inspection and control. An employer or foreman may have good intentions toward an apprentice and yet not take the pains to arrange the man's work so that he will learn all the steps of the trade in a reasonable length of time. Or an apprentice may be considered simply as another hand—cheap labor to be used for all he is worth.³⁰

PUPILS: WHEN AND HOW OBTAINED

There has not been perfect agreement in France as to when a man should begin his vocational re-education. Should the re-education schools accept as pupils only those men who are completely cured of their wounds and who have either received their discharge from the army or are on indefinite leave awaiting their discharge? Or should men be allowed to take up training during their convalescence, while they are inmates of a military hospital? A number of the schools announced definitely at first that they would accept as pupils only men who were cured. The École Joffre, the École de Tourvielle, and the schools at Saint-Étienne, Rouen, and Montpellier, among others, took this stand.³¹ Their

²⁶ Carle M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, pp. 22-26.

²⁷ *Ibid.*, p. 32.

Breuil, J. *L'École professionnelle des blessés de la guerre à Rouen*. Rouen, 1916, p. 19.

Jeanbrau, Émile. *L'École professionnelle des blessés de la XVI^e région à Montpellier*. Montpellier, 1916, p. 32.

École professionnelle des blessés militaires du département de la Loire. Saint-Étienne, 1917, p. 10.

²⁸ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, p. 27.

²⁷ Bittard, A. L. *Les écoles de blessés*. Paris, 1916, p. 108.

²⁹ Harper, Grace S. *Vocational re-education for war cripples in France*. New York, 1918, pp. 59-60.

³⁰ Musée Galliera. Paris, 1916, pp. 18, 24.

guiding principle in this decision was their belief that a man cannot devote all his energies to learning a trade while he is undergoing treatment for his injuries. Mme. Weill, in a report to the Inter-Allied Conference, expressed her fear that men who start work at a trade too soon will find it so difficult or so painful that they will give up the attempt for good.³² On the other hand, the Medical Service, as has been seen, has annexed schools to hospitals of physiotherapy in order to make it possible for men to start their training while undergoing the final stages of their treatment. Existing schools utilized for this purpose have, therefore, had to revise their rulings. Some of the most distinguished specialists in France, among them Professor Amar, Dr. Bourrillon, and Dr. Gourdon, support the government in its belief that functional and vocational re-education can be dovetailed.³³ Co-operation between hospital and school has from the beginning been successfully carried out at Saint-Maurice and in the schools organized by the *Union des colonies étrangères* at the Grand Palais and Maison-Blanche. And the schools at Montpellier and Bordeaux since their annexation to hospitals, have found their usefulness increased.³⁴ A statement is found in a recent book on the École de Tourvielle by its director, M. Gustave Hirschfeld, that "it is to be hoped that some day physiotherapy will be installed at Tourvielle, as the combination of functional treatment with trade training has everywhere yielded good results."³⁵

According to present French opinion, there are very great advantages to the men themselves of commencing their training as early as possible in their convalescence. For one thing, the men are set to work and made interested in a trade

³² Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 167.

³³ *Ibid.*, p. 167.

Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, p. 93.

Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 54.

³⁴ Gourdon, J. Rapport général sur l'école pratique et normale de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux. Bordeaux, 1917, p. 7-8.

Bulletin de l'œuvre des mutilés de la guerre de la XVI^e région, 1^{er} Octobre, 1916. Montpellier, 1916, p. 36.

³⁵ Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 72.

before they have had an opportunity to form bad habits of idleness and intemperance.³⁶ For another, their cure is often hastened by the lift to their spirits and the exercise of their muscles occasioned by the work.³⁷ Then, too, many more men can be induced to take up training at this stage than later when they have returned to their homes.

Schools which take only discharged soldiers have found it difficult to get men to embrace the opportunities offered. A few schools, as, for instance, the famous Lyons schools, which have attained a great reputation throughout the country, may have a waiting list of applicants, but in general the schools have had to resort to all kinds of advertisements in order to obtain pupils. They have used advertisements in newspapers, notices posted in hospitals, handbills, and postcards, and have still been disappointed in the response.³⁸ In an endeavor to increase the schools' sphere of usefulness, the Minister of the Interior presents to each man discharged from the army a booklet which informs him of the schools in the different parts of the country, to which he can go for training, and urges him to take advantage of one of them. The booklet contains a list of the trades taught in each school and the average wages in each trade, and men are told exactly what steps they should take to secure admission to any desired course. Three photographs in the booklet show maimed men at work.³⁹

In order to reach men who have returned to their homes, the government conducts re-education propaganda in the form of illustrated lectures, moving pictures, and posters.⁴⁰ It also urges prefects and mayors to do everything possible to induce men to take up training. In some of the departments the prefect collects from the

³⁶ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 51.

³⁷ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 193.

³⁸ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 164.

Œuvre nivernaise des mutilés de la guerre. Nevers, 1917, p. 13.

³⁹ Norman, Sir Henry. The treatment and training of disabled and discharged soldiers in France. London, 1917, pp. 32-33.

⁴⁰ *Ibid.*, p. 8.

mayors of the different communes in his department the lists of disabled soldiers and their present means of existence. He then summons together at the prefecture those who could benefit from re-education, and explains to them what opportunities are open to them.⁴¹

In spite of the campaign of propaganda and the obvious advantages to be gained from trade training, an investigation conducted by the National Office showed that in June, 1916, the number of men in re-education schools was extremely small when compared with the number of *mutilés* incapable of resuming their former occupations. Lack of facilities for re-education was not the cause of this situation, for the National Office further reports that the existing schools could take care of all the demands for training that might be made on them.⁴²

The difficulty lay rather with the men themselves. Many men refused to enter upon a course of training through fear that if their earning capacity were increased, their pensions would be correspondingly diminished. Others became demoralized by the adulation and pity of their family and friends, and thought that no work should be expected from men who had sacrificed so much for their country. Still others looked forward to obtaining a small place with the government, a sinecure in which they could putter comfortably for the rest of their lives. For the widely current belief that re-education would affect a man's pension there was absolutely no foundation, and the government has recently contradicted it in public announcements by the different ministries and in notices to disabled soldiers. A definite statement that "in no case shall the amount of the pension be reduced because of vocational re-education or readaptation to work" is incorporated in the Rameil law, which first passed the Chamber of Deputies in April, 1916, and finally became law in January, 1918.⁴³ Furthermore the Minister of the Interior has ruled that the final adjustment of pension

claims shall be effected more rapidly for men in vocational schools than for any others.⁴⁴

After it was decreed that schools should be organized in connection with hospitals of physiotherapy and prosthetic equipment and that certain existing schools should be annexed to hospitals, it became easier for those schools to recruit their pupils. In the combined centers, as they are now managed, a list of the entrants in the hospitals is turned over to the director of the school. The director then calls the men together, talks with them in a friendly way, and secures the promise of as many of them as possible to take up some course of training suited to their tastes and abilities. Often those who hold out have their resistance overcome by the example of their comrades. Dr. Kresser, head of the school at Maison-Blanche, writes: "The best recruiting agency for the schools is the example of the man who works at a trade during the day and who, on his return to his pavilion in the evening, tells his companion what he has been doing and what he has earned."⁴⁵ Men in hospital can also be influenced by doctors and nurses and by the visitors delegated by the departmental committees.

As proof of the increased usefulness of schools when attached to hospitals, Dr. Gourdon, who is head of the re-education school at Bordeaux, states that at its beginning, when the school received only discharged soldiers, eighty per cent. of the men to whom it offered an opportunity for training refused to avail themselves of it; whereas after the school was attached to the hospitals of physiotherapy and prosthetic equipment in the city, the number of refusals was reduced in two months to six per cent., and at the present time is zero.⁴⁶ Testimony to the same effect is supplied by M. Chancrin, in his report on agricultural re-education contributed to the Inter-Allied Conference. The National Agricultural School at Grignon, he declares, was

⁴¹ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 164.

⁴² Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 10, 22.

⁴³ *Journal des mutilés, réformés, et victimes de la guerre*. Paris, 1918, No. 50, p. 2.

⁴⁴ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 167.

⁴⁵ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 164.

⁴⁶ Gourdon, J. Rapport général sur l'école pratique et normale de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux. Bordeaux, 1917, pp. 7-8.

able to render really valuable service only after a hospital of physiotherapy was installed in the vicinity and the men undergoing treatment there were received as pupils.⁴⁷

When men in hospital who are taking training in an annexed school have completed their functional cure or received their prosthetic appliance, they are recommended for discharge from the army. They can then, if they wish, demand to be sent to their homes, in which case their training will be broken off. Or they can ask to be sent to some other school not annexed to a hospital. Or they can remain until they have finished their course.⁴⁸

SUPPORT OF MEN DURING TRAINING

Before men are recommended for discharge, they are of course still soldiers and their support is borne by the Ministry of War. If after their recommendation for discharge they enter or remain at a re-education school, some other agency provides their maintenance.

The greater number of the large schools on the *internal* plan furnish instruction, board, and lodging, and usually clothing and laundry free of charge. No deduction is made from a man's pension for these benefits, but if instead of a pension, he is drawing the temporary allowance of one franc seventy centimes a day granted to men awaiting their discharge at home, he has the sum of one franc twenty centimes a day deducted from his allowance.⁴⁹ This would seem to be an injustice to men the settlement of whose pension is pending, but the Minister of the Interior has ruled that as the sum is granted for maintenance to men awaiting their discharge at home instead of in a hospital, it cannot be given to men who are being supported by the

state in a re-education school.⁵⁰ As soon as their pension begins, no deduction is made from it to defray the cost of their training. Up to that time the family continues to draw the separation allowance. Afterwards, if the separation allowance was larger than the pension, the difference between the two is added to the pension during the man's period of training. The length of the period of training during which the family draws this benefit is determined by the departmental committee.⁵¹

The large *internal* schools have found that the average cost per pupil per day for maintenance and instruction is about five francs.⁵²

In the day schools instruction is free, and maintenance is usually provided by one of the large aid societies, such as the *Fédération nationale* or the *Aide immédiate*. No deduction is made from either the temporary allowance or the pension, and the society grants in addition three francs fifty centimes or four francs a day. It holds up its grant if the pupil is absent from school without cause.⁵³

The present scale of pensions in France is based on an old law dating from 1831 and is admittedly inadequate to present-day needs. The government has recognized the deficiencies of the pension system and has brought forward a bill embodying a comprehensive scheme of revision, but for one reason or another the passage of the bill has been delayed and it is still under consideration by the National Assembly. Under the old law now in force the permanent pension of a common soldier is from 600 to 975 francs a year, according to the degree of his disability.⁵⁴

WAGES

In many schools wages are paid, beginning with fifty centimes or one franc a day and reach-

⁴⁹ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, p. 104.

⁵⁰ *Journal des mutilés, réformés, et victimes de la guerre*. Paris, 1918, No. 50, p. 2, Loi du 2 Janvier, 1918.

⁵¹ Bourrillon, Maurice. *Rapport sur l'institut national de Saint-Maurice*, 1917, p. 13.

Déville, A. *Rapport sur le fonctionnement de l'école de rééducation de la place du Puits-de-l'Ermite*. Paris, 1916, p. 20.

Hirschfeld, Gustave. *Tourvielle*. Lyon, 1917, p. 72.

⁵² Musée Galliera. Paris, 1916, pp. 18, 24.

École Rachel. *Rapport*, 1917, p. 1.

⁵³ Harper, Grace S. *Vocational re-education for war cripples in France*. New York, 1918, pp. 19-22.

⁴⁷ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 213.

⁴⁸ *Journal des mutilés, réformés, et blessés de guerre*. Paris, 1916, No. 13, p. 5.

⁴⁹ Hirschfeld, Gustave. *Tourvielle*. Lyon, 1917, p. 62.

Jeanbrau, Émile. *L'École professionnelle des blessés de la XVI^e région à Montpellier*. Montpellier, 1916, p. 55.

Bourrillon, Maurice. *Comment rééduquer nos invalides de la guerre*. Paris, 1916, p. 96-97.

Œuvre nivernaise des mutilés de la guerre. Nevers, 1917, p. 8.

ing later four to six francs a day. In others the product of the workshop is sold and the proceeds, less the cost of the raw materials, are divided among the workmen.⁵⁵ This is the case at Saint-Maurice, where a half of the sum thus earned is paid out at the end of every fortnight, and the other half saved by the school and paid to the man in a lump sum when he leaves. At Tourvielle the value of the labor put into articles made in the shops is paid for whether the articles are sold or not, the money being divided among the workmen at the end of every month according to their productive capacity. Men are encouraged to save at least a part of it so that when they leave they will have money to buy needed tools or equipment.

At Saint-Claude, in the school for diamond-cutters, pupils are paid two francs a day during the first month, and then a gradually increasing sum until during the sixth month they earn four francs a day. During the next three months they receive seventy-five per cent. of the average wages of a workman outside, and during the eleventh and twelfth months full wages, less fifty centimes a day for the running expenses of the school. In this school, however, pupils are required to pay a small weekly sum for their board and lodging.⁵⁶ At Saint-Étienne the net proceeds from work done in the shops are divided into three sums. Twenty-five per cent. goes to the school for the upkeep of tools and equipment; twenty-five per cent. to the foremen as an addition to their salaries and to encourage them to increase the productiveness of the shops; and fifty per cent. is divided among the pupils. Half of the pupil's share is paid to him in cash, and half is deposited for him in the savings bank to be drawn only when he leaves the school.⁵⁷ At

Tours, where there is carried on a model system of apprenticeship with private employers, apprentices receive from the employers the wages which their services are worth. At the beginning the pay may be very small, but it is eked out by a small monthly allowance from the association in charge, the *Assistance aux convalescents militaires*, which adopts this method of encouraging the men to continue the work. Without such help the men might yield to the temptation of leaving the work in which they were receiving valuable training for more immediately remunerative employment. Men who receive from their employers less than fifty francs a month receive for the first six months twenty francs from the association. Half of this sum is paid to them in cash, and the other half is deposited to their savings account and can be drawn at the expiration of their apprenticeship, when they may wish to set up a shop of their own.⁵⁸

DISCIPLINE

The matter of discipline in the schools seems to be very simple. It cannot be better stated than in the words of Dr. Jeanbrau, the first head of the Montpellier school: "Every pupil whose conduct, work, or attitude of mind does not give satisfaction is sent away. There are no punishments, and there should be none. If a pupil could commit any fault and give a bad example to others at the price of a mere reprimand or of being kept in, the school would not be what we want it to be."⁵⁹ To every new pupil at Montpellier the attitude of the school authorities is explained as follows: "This school is neither a barracks nor a college, nor a workshop of the kind you have known in the past. It is an institution established by philanthropists to teach disabled men how to earn an honorable living. You will be boarded, lodged, clothed, and instructed, all at the cost of the institution. If you are industrious and become a good workman, we will try to find a position for you or help you to set up your own shop. In return we demand only two things: that you work industriously,

⁵⁵ Bourrillon, Maurice. *Comment rééduquer nos invalides de la guerre*. Paris, 1916, pp. 96-97.

Weill, Mme. David. *Les mutilés et estropiés de la guerre dans la menuiserie et quelques autres industries du bois*. Paris, 1917, p. 3.

Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 216.

Breuil, J. *L'École professionnelle des blessés de la guerre à Rouen*. Rouen, 1916, pp. 18-22.

Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 62.

⁵⁶ École de rééducation professionnelle diamantaire des mutilés de la guerre. Saint-Claude, 1916. [Announcement].

⁵⁷ École professionnelle des blessés militaires du département de la Loire. Saint-Étienne, 1917, p. 13.

⁵⁸ Centre de rééducation professionnelle de Tours. Tours, pp. 12-13.

⁵⁹ Jeanbrau, Émile. *L'École professionnelle des blessés de la XVI^e région à Montpellier*. Montpellier, 1916, p. 57.

and that you have the right spirit. If a man forgets that he is here for work, he must go. Here there are no punishments. You are not obliged to come; we are not obliged to take you. If we are not satisfied with you we will send you away and give your place to some more earnest pupil. But if you do your best we will aid you with all the means in our power."⁶⁰

This is the principle underlying the discipline in practically all the schools, but sometimes, in order not to do a man an injustice, it has been found necessary to give him a warning, and then even to repeat this warning, with an accompanying deprivation of leave. The schools at Lyons, at Rouen, and at Saint-Maurice, among others, report that they use these measures.⁶¹ At Saint-Maurice there is an additional disciplinary measure. For drunkenness men are deprived of wine at their meals. In describing the system at Saint-Maurice, Dr. Bourrillon says that the only serious obstacle to discipline comes from alcoholism.

At Saint-Maurice men are allowed their liberty every evening from the dinner hour until nine o'clock, and all day on Sundays. At the École Joffre and at Tourvielle they are not permitted to leave the grounds except on Thursdays from nine to one, and on Sundays. Other schools have similar rulings.

TEACHERS

For teachers or foremen of the shops, the school authorities give preference to those who have a thorough practical knowledge of the trade and, in addition, some teaching experience. Thus the director chosen for the shoemaking shop at Lyons was a former teacher of shoemaking for the *Société de secours aux apprentis du Rhône*, and had been for many years the superintendent of a factory.⁶² The foreman at Rouen was an expert shoemaker who had been a teacher at the voca-

tional school at Tourcoing. He was a refugee at Rouen when he was engaged for the work.⁶³ When this ideal combination of teacher and master workman could not be secured, schools have usually engaged workmen of long experience in their trade. Often they have obtained these by applying to the local trade unions. Maimed and crippled men who have mastered their trade in spite of their handicap have in several cases proved inspiring teachers. A great deal of the success of the work depends, says Dr. Carle, upon the personality of the teacher or foreman. He should be, says this authority, not only an expert in his craft but one who can make his pupils understand and love it.⁶⁴

CURRICULUM

There are in France large schools teaching a variety of trades and smaller schools specializing in one trade or group of connected trades. In the larger schools the curriculum is usually divided into three parts: instruction in manual trades, instruction in office work, and general schooling. The manual trades most often taught are shoemaking, tailoring, basketry, harness-making and saddlery, tinsmithing, and carpentry.⁶⁵

These trades seem to have been selected for a number of reasons. They afford a good living in the city or country; they do not require expensive equipment; and they are asked for by men seeking re-education. That they are good village trades is important in view of the fact that a large proportion of the *mutilés* were before the war in rural occupations.⁶⁶ In order not to contribute to the movement cityward, the schools must teach these men trades which they can practise in their former homes.

Of all these trades shoemaking is the most popular with the men; the shoemaking class in practically every school is the largest among the manual trades. The director of the school at Tourvielle, in explanation of this fact, writes

⁶⁰ *Ibid.*

⁶¹ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, pp. 97-101.

Bourrillon, Maurice. *Comment rééduquer nos invalides de la guerre*. Paris, 1916, p. 77.

Hirschfeld, Gustave. *Tourvielle*. Lyon, 1917, p. 71.

Breuil, J. *L'École professionnelle des blessés de la guerre à Rouen*. Rouen, 1916, pp. 22-24.

⁶² Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, p. 67.

⁶³ Breuil, J. *L'École professionnelle des blessés de la guerre à Rouen*. Rouen, 1916, p. 27.

⁶⁴ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, p. 43.

⁶⁵ Office national des mutilés et réformés de la guerre. *Bulletin No. 1*. Paris, 1916, pp. 168-184.

⁶⁶ *Ibid.*, p. 20.

that villagers are eager to learn a trade which, when eked out with their pension, will make them independent without taking all their time. They like to be able to set up their shop in their house, where between nailing on new soles they can run out and hoe their garden or their grapevine.

In addition to the standard trades mentioned, a large number of re-educational schools teach the trade of mechanic, and many teach different branches of the printing industry—typography, lithography, type-founding, binding, etc. The manufacture of artificial limbs and other appliances—a growing industry in France—is also considered a good trade for disabled men, and several schools have organized shops in which men can learn the different branches of the work. Workers in wood, iron, and leather are employed in such shops. Other trades taught are brush-making, chair-caning, clock-making, toy-making, paper-box-making, welding, forge work, founding, electric wiring, locksmithing, engraving, metal-turning, wood-turning, mould-making, stucco work, pottery, carriage painting, varnishing, upholstery, fur work, photography, jewelry-making, sabot and galoche-making, stone-carving, hairdressing, dental mechanics, and wireless telegraphy. Certain of these trades have been selected for the *mutiles* on account of a shortage of workmen in the trade, due to the large numbers of Germans and Austrians formerly employed; others because they are peculiarly suited to the reduced powers of disabled men. In some cases regional demands for labor have had an influence. Other trades have been chosen because they are growing industries offering many opportunities for well-paid employment. Several of the schools teach in their own workshops as many as fifteen or twenty different trades.⁶⁷

Under the heading, office work, may be grouped the commercial courses—bookkeeping, stenography, and typewriting—and industrial design. Much is written in France about the shortage of the labor supply and the necessity of returning men to industry, but in spite of these recognized facts large numbers of workmen are being trained by the re-educational schools for office positions. Hardly a school in France except the specialized schools is without its commercial

courses. In these courses, moreover, there are generally more pupils than in any manual trade, except possibly shoemaking.⁶⁸ It appears that schools have opened these courses in answer to the great demand for them from men who believe themselves unfit for any manual work. To become a clerk is the great ambition of most disabled workmen.

Industrial design, or draughting, is not so generally taught as are the commercial courses, but it is found in the curriculum of a number of schools. At Saint-Maurice, where draughting is successfully taught to variously disabled men, the course as first planned included three kinds of design—for ornament, for machinery, and for building—but later ornament was dropped as requiring more than ordinary artistic ability.⁶⁹ At the city and departmental school in Paris the course includes design for furniture, ironwork, building construction, architecture, and landscape gardening.⁷⁰

School subjects are often included in the commercial course to supply the deficiencies of preliminary education. Many schools require the men in the manual trades also to attend classes in school subjects. These classes are usually held for one hour every evening after dinner. The illiterate are taught reading, writing, and arithmetic; the others receive instruction in French, history, arithmetic, hygiene, geography, and current events.⁷¹

Courses preparing for a teachers' certificate are given in a few schools.⁷²

⁶⁷ *Ibid.*, pp. 9-10.

⁶⁸ Bourrillon, Maurice. Rapport sur L'institut national à Saint-Maurice. 1917, p. 21.

⁶⁹ Deville, A. Rapport sur le fonctionnement de l'école de rééducation de la place du Puits-de-l'Ermite. Paris, 1916, p. 17.

⁷⁰ Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, p. 98.

Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 124.

⁷¹ Deville, A. Rapport sur le fonctionnement de l'école de rééducation de la place du Puits-de-l'Ermite. Paris, 1916, p. 17.

Jeanbrau, Émile. L'École professionnelle des blessés de la XVI^e région à Montpellier. Montpellier, 1916, p. 48, 52.

⁷² Gourdon, J. Rapport général sur l'école normale et pratique de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux. Bordeaux, 1917, p. 5.

Bulletin de l'œuvre des mutilés de la guerre de la XVI^e région. 26 Mai, 1917. Montpellier, 1917, pp. 22, 23.

École professionnelle des blessés militaires du département de la Loire. Saint-Étienne, 1917, p. 16.

⁶⁷ *Ibid.*, pp. 168-184.

Smaller schools teaching only one trade or group of trades have been started in districts where there is a predominant local industry. Their aim is to give men the training which will meet the labor demands of the vicinity. Thus at Oyonnax men are taught the different branches of the celluloid industry, so that they can go into the numerous factories which make celluloid articles.⁷³ At Saint-Claude, where diamond cutting is an important industry in the town and surrounding villages, a school organized for *mutilés* teaches diamond cutting only.⁷⁴ Several national trade schools already established before the war to train workmen in a regional industry are now teaching their specialty to disabled men. Among these are the national school of clock-making at Cluses and the practical industrial schools at Elbeuf and Roanne, which train men in the textile trades.

In Paris some special schools have been organized by trade unions and some by employers. Novelty jewelry-making, for example, as has been mentioned above, is taught in a school managed by the union of workmen in that trade. Different branches of mechanics are taught at the *École Rachel*, Montrouge. There are other special schools in Paris for carpentry, glass-blowing, toy-making, and tapestry weaving.

LENGTH OF COURSES

The length of time required to learn a trade in French re-educational schools varies with the trades and with the schools. At the *École Joffre* and the *École de Tourvielle* in Lyons the courses are long, for the aim of these schools is to turn out thoroughly trained workmen capable of competing with sound men on equal terms.⁷⁵ Six months is the length of the shortest course offered in these schools, which is a course in beadwork organized for badly injured men incapable of vigorous movements. Eight months are ordinarily required for bookkeeping, radio-telegraphy, and galoche-making, a year for shoemaking, fur work, horticulture, paper-box-

⁷³ *École d'apprentissage pour les mutilés de la guerre*. Oyonnax.

⁷⁴ *École de rééducation professionnelle diamantaire des mutilés de la guerre*. Saint-Claude, 1916. [Announcement].

⁷⁵ Carle, M. *Les écoles professionnelles de blessés*. Lyon et Paris, 1915, p. 49.

making, and binding, and eighteen months for tailoring, cabinet-making, toy-making, and the manufacture of artificial limbs.⁷⁶

At the National Institute at Saint-Maurice the apprenticeship is shorter, the aim here being rather to fit men to earn a living wage in a shop where they can complete their knowledge through practice and so later aspire to higher pay. Bookkeeping is taught in three months at Saint-Maurice, shoemaking and saddlery in eight months, tinsmithing in five months, the use and repair of agricultural machinery in five months, and industrial design in one year.⁷⁷

At Rouen the period of apprenticeship is not fixed. The direction of the school aims to produce first-class workmen in each trade, and it leaves the foreman of each shop to decide when an apprentice has acquired the necessary knowledge and skill.⁷⁸

Some of the special schools require a long apprenticeship, but during the latter part of the period pay wages approximating an outside workman's. This is the case in the diamond-cutting school at Saint-Claude, where the apprenticeship lasts one year.⁷⁹ At the *École nationale d'horlogerie* at Cluses the regular course is for three years, but for the benefit of the *mutilés* this has been shortened to two years.⁸⁰

At the *École normale et pratique* of Bordeaux, which is considered a model school, the length of apprenticeship in the different trades is as follows:⁸¹

Machinists and metal-turners, ten to twelve months.
Locksmiths and forge-workers, ten to twelve months.
Agricultural machinery and automobiles, five to seven months.

Oxy-acetelene welding, four to five months.

Shoemaking, six to nine months.

Sandal-making, three to four months.

Pottery, ten to twelve months

⁷⁶ Hirschfeld, Gustave. *Tourvielle*. Lyon, 1917, p. 61.

⁷⁷ Bourrillon, Maurice. *Rapport sur l'institut national à Saint-Maurice*. 1917, pp. 11-28.

⁷⁸ Breuil, J. *L'École professionnelle des blessés de la guerre à Rouen*. Rouen, 1916, p. 25.

⁷⁹ *École de rééducation professionnelle diamantaire des mutilés de la guerre*. Saint-Claude, 1916. [Announcement].

⁸⁰ Harper, Grace S. *Vocational re-education for war cripples in France*. New York, 1918, p. 73.

⁸¹ Gourdon, J. *Rapport général sur l'école pratique et normale de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux*. Bordeaux, 1917, p. 10.

Binding, plain and artistic, eight to ten months.
 Gilding, four to six months.
 Paper-box-making, four to six months.
 Toy-making, three to five months.
 Tailoring, ten to twelve months.
 Musical engraving, six to eight months.
 Basketry and caning, five to eight months.
 Industrial design, six to eight months.
 Truck gardening, five to six months.
 Bookkeeping, nine to ten months.

VOCATIONAL ADVICE

The larger schools offering a choice of trades must usually advise their pupils as to what trade to take up. On the quality of the advice given depends, according to Dr. Bourrillon, the success of a school.⁸² French re-educational authorities generally agree that good advice is based not only on the extent and nature of a man's injury, but also on his age, his general health and muscular strength, his native intelligence and previous education, his former occupation (in order to direct him, when possible, to a similar trade), his manual dexterity, and his inclinations. In order to determine a man's physical condition, many schools subject their pupils to a thorough examination by a physician. The technical director then interviews each man to discover his mental capacities and tastes. After consultation between the physician and the technical director, the man is directed to the trade best suited to him. In a report presented to the Inter-Allied Conference last spring, Dr. Carle regrets that some schools, owing to an increasing number of candidates, are tending to dispense with an examination and are admitting and classifying pupils on their mere written application.⁸³

Although it is generally admitted that men should go back to their old trade whenever their earning capacity has not been seriously reduced by their disability, the majority of men in re-education schools are, as might be expected, learning new trades. Most men who can overcome their handicap by practice do not attend a school. At Bordeaux, of 773 pupils who had passed through the school, twenty per cent. had

readapted themselves to their former trade. In Mme. Weill's *Atelier*, out of ninety-seven pupils, twenty-five were there for readaptation.⁸⁴

French authorities do not believe that one can lay down any hard and fast rules as to what disabilities are compatible with the different trades. They have found that too much depends on the individual's determination and perseverance and on his natural ingenuity in adapting himself to his disability to make such a classification possible. In general, French experience has proved that a man who has lost one leg can take up almost any trade which does not require continued standing, and that there are numerous seated occupations for men who have lost both legs.

The man who has lost an arm is considered a much more serious problem. Dr. Bourrillon does not believe that one-armed men can become proficient enough in a manual trade to compete with normal workmen and favors training their intellectual capacities. The *manchots* at Saint-Maurice are, therefore, to be found in the book-keeping and stenography classes and in the section for industrial design.⁸⁵ In the schools at Lyons, also, the majority of one-armed men are being trained for office positions, though there are a considerable number, barred from such work by a lack of schooling or intelligence, who are learning a trade in the bindery and the toy and paper box shops.⁸⁶ At Tourvielle, two men with arm amputations have relearned their old trade of galoche-making, a trade from which in principle one-armed men are debarred. One man there who has lost an arm has learned wireless.⁸⁷

At Montpellier, men with their right or left forearm amputated have been taught to do wood and metal lathe work and mechanical fitting, and men with ankylosed or paralyzed arms have

⁸² Gourdon, J. Rapport général sur l'école pratique et normale de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux. Bordeaux, 1917, p. 27.

Weill, Mme. David. Les mutilés et estropiés de la guerre dans la menuiserie et quelques autres industries du bois. Paris, 1917, p. 5.

⁸³ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, pp. 39-43.

Bourrillon, Maurice. Rapport sur l'institut national à Saint-Maurice. 1917, pp. 14-28.

⁸⁴ Basèque, A. Rapport sur l'École Joffre. 1917.

⁸⁵ Hirschfeld, Gustave. Tourvielle. Lyon, 1917, pp. 83, 92, 108.

⁸² Bourrillon, Maurice. Rapport sur l'institut national à Saint-Maurice. 1917, p. 9.

⁸³ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 100.

learned tailoring and shoemaking. Several men with severely injured or amputated arms have become successful draughtsmen.⁸⁸ In the workshops for artificial limbs at Bordeaux, a man who has lost an arm below the elbow earns a normal wage as a filer; another whose arm has been disarticulated at the shoulder is running a band saw in the toyshop; and men with various kinds of arm amputations are learning the potter's trade.⁸⁹ Mme. Weill's *Atelier* readapts to their trade former carpenters who have lost an arm if their stump is thirteen centimeters long, *i. e.*, long enough to permit an appliance to be firmly attached and easily used. An inexperienced man who has lost an arm is not encouraged to learn the trade. Men with an arm disarticulated at the shoulder are here taught French varnishing.⁹⁰ Work with a lathe and band saw, in the experience of several schools, yields a good return to one-armed men.⁹¹

Agricultural Re-education

The great shortage of agricultural labor, which threatens to be a serious problem in France even after the demobilization of the armies, makes it important to return every wounded peasant to his old surroundings and work. That disabled men, even men who have suffered an amputation, are capable of doing agricultural work has been demonstrated many times. Experiments have proved that a man who has lost an arm or a leg can, when provided with the proper prosthetic appliance, dig, plow, and reap with a fair degree of efficiency.⁹² As the disabled farm worker is, however, usually convinced that he is unfit for his old tasks, it is necessary to show him what he can do with his appliance, and

to give him a short course of training in adapting himself to his disability.

In order to provide this training for disabled men, the Minister of Agriculture, as was stated above, organized courses and sections for *mutilés* in the existing agricultural schools. The *Fédération nationale d'assistance aux mutilés* also provides agricultural re-education in two schools, and the *Union des colonies étrangères* has established a very ambitious school for agricultural training at Juvisy, twenty miles from Paris.⁹³ Horticulture is taught at the École de Tourvielle and truck gardening at Bordeaux.

DIFFICULTY IN OBTAINING PUPILS

In April, 1917, twenty-one schools under the Minister of Agriculture had opened re-education courses for disabled men, but their accomplishment in the way of re-educated men was not large. Eight hundred and thirty wounded men at that date had gone through these schools; 381 were taking courses.⁹⁴ The cause of these small numbers is to be found in the difficulty of obtaining pupils encountered by all the schools not connected with hospitals. The agricultural school at l'Oisellerie (Charente) reported to the Minister of Agriculture in October, 1916, that it had only one pupil, in spite of an active propaganda carried on by the teachers of the school and by the departmental association for aiding the *mutilés*.⁹⁵ In the dairying school at Mamirolle (Doubs) at the beginning of 1917, there was also only one *mutilé*, with two others expected. Yet notices of the opportunities offered by the school had been sent to all the convalescent depots.⁹⁶ The director of the dairying school at Aurillac writes: "To expect that the director of a school situated far from the great convalescent centers can obtain pupils for his school is a wild

⁸⁸ Jeanbrau, Émile. *L'École professionnelle des blessés de la XVI^e région à Montpellier*. Montpellier, 1916, p. 44.

⁸⁹ Gourdon, J. *Rapport général sur l'école pratique et normale de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux*. Bordeaux, 1917, pp. 45-47.

⁹⁰ Weill, Mme. David. *Les mutilés et estropiés de la guerre dans la menuiserie et quelques autres industries du bois*. Paris, 1917, pp. 7-10.

⁹¹ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 117.

⁹² Hirschfeld, Gustave. *Tourvielle*. Lyon, 1917, p. 113.

⁹³ Fédération nationale d'assistance aux mutilés. Notice. January 1, 1917, pp. 3-4.

Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 212.

⁹⁴ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 213.

⁹⁵ Baillarge, E. *École d'agriculture de la Charente*. Rapport, 1916.

⁹⁶ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 154.

dream. Men must be sent to the schools from the hospitals."⁹⁷

Peasants who have received their discharge can, it seems, be persuaded to enter agricultural schools only with the greatest difficulty. Those who were independent farmers owning or leasing small properties have only one thought—to return as soon as possible to their homes, where no doubt their head and hands are badly needed. Those who were farm hands often wish to escape from the hard work of the farm into some better-paid city position.

On the other hand, the schools which draw their pupils from hospitals, such as those at Ondes, Grignon, and Beaulieu, are well filled and doing an excellent work in returning men to the land.⁹⁸

AGRICULTURAL COURSES

Most of the schools aim to do more for the men than simply to teach them how to manage their appliances and readapt themselves to their old work. It is felt that more men will be tempted to enter the schools if after re-education they have the prospect of becoming something better than good farm servants. Re-education should, it is believed, give additional knowledge which will more than compensate a man for his disability. The general agricultural schools, therefore, give a course in scientific farming planned to fit men to become superintendents or managers of a farm for others or for themselves, and also courses in special branches of farming work, such as vine culture, dairying, poultry raising, truck gardening, bookkeeping, etc. Men without the capacity for an executive position take whatever special course will give them the knowledge most valuable in their region. Some schools teach also the trades with which a farm worker or farm owner can occupy himself during the winter or during bad weather. These are the trades of blacksmithing, carpentry, cooperage, and basketry. The courses in general agriculture last from four to six months; the courses in special subjects from two to four months.⁹⁹

⁹⁷ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 214.

⁹⁸ *Ibid.*, p. 207.

⁹⁹ *Ibid.*, pp. 205-226.

RURAL CREDIT SYSTEM

If after taking the general agricultural course, a man feels that he wants to manage his own farm, he can acquire a piece of land through the rural credit system which operates under the Minister of Agriculture in every department of France. Under this system, the regional rural credit banks (*caisses régionales de crédit agricole mutuel*) are authorized to make three kinds of loans—for long, short, and medium terms. On long term credit, the banks can lend sums up to 8,000 francs for the acquisition or restoration of small farms. These loans are payable in fifteen years with interest at two per cent. They must be secured by a mortgage or by a lien on a life insurance policy. On short term credit, farmers can obtain as an advance on the harvest smaller sums for the purchase of fertilizers, seeds, agricultural implements, and animals, for the payment of their help and their rent. These loans are made at a moderate interest and are payable in from three months to one year. On medium term credit, farmers can obtain loans up to 5,000 francs. They are payable in five years.¹⁰⁰

FARM MECHANICS

Farm mechanics, or the use and repair of tractors and other agricultural machinery, is taught in a number of the schools, and probably even greater emphasis will be laid on this work in the future. In order to make up in part for the alarming shortage of hands, the government is putting forth every effort to turn the French peasant from his old-fashioned methods of farming and to induce him to use modern labor-saving machinery. Large numbers of tractors are being imported from America, and every machine introduced makes a demand for a man who can run and repair it.

The first course in farm mechanics was started by Dr. Bourrillon at the National Institute at Saint-Maurice when that school was organized in April, 1915. It is now taught in eight agricultural schools in the provinces, and in the *Maison du soldat du XIII^e Arrondissement* in Paris.¹⁰¹ At Saint-Maurice, the course is from five to six months long, and gives to the pupils a

¹⁰⁰ *Ibid.*, p. 211.

¹⁰¹ *Ibid.*, p. 217.

thorough understanding of the gasoline and electric motors used in stationary and tractor engines for farm use. It includes some turning, forge work, soldering, etc., in order that men engaged to run such machines in remote country districts shall be able to make all repairs and even to replace parts when necessary.¹⁰² At the *Maison du soldat*, the course lasts three months; at Ondes two months. Inasmuch as the wages paid to skilled men are much higher than those which ordinary farm laborers receive—equalling, indeed, those in city industries—there is no difficulty in recruiting pupils for these courses.¹⁰³

Dr. Bourrillon asserts that the work is suitable for men with lesser disabilities only. It should not be taught, he believes, to men with an amputated leg or arm, since it requires agility in getting on and off the machines and the ability to assemble and adjust numerous small parts.¹⁰⁴ M. Chancrin, who made a report on agricultural re-education to the Inter-Allied Conference, says that the driver of a tractor may have lost a leg below the knee, or a forearm, if the elbow and shoulder joints are normal.¹⁰⁵

Graduates of the course at Saint-Maurice have in some cases been placed directly with farmers. In other cases, they have been placed with the companies that sell the machines, usually as demonstrators that accompany the machines on their delivery to the purchaser.¹⁰⁶

Placement

PLACEMENT WORK OF THE SCHOOLS

Disabled men who have attended a re-education school are easily placed in good positions by the school itself. Dr. Bourrillon of the National Institute reports: "We receive, in all trades, more demands from employers than we can fill," and "in the majority of cases our pupils have

secured positions superior to those they occupied before the war."¹⁰⁷ Statements to the same effect are found in the reports of the directors of other schools. Many schools have organized a placement service in connection with their other work. Schools which do not wish to take on this extra work notify the local employment bureaus of the men who are about to finish their training and of the kind of places they will want.

PRIVATE AND PUBLIC BUREAUS

The large proportion of discharged soldiers who have not passed through re-educational schools are placed by various public and private employment bureaus. Owing to the great scarcity of labor in France, workmen, trained or untrained, have no great difficulty in obtaining work.¹⁰⁸ In the early days of the war, large numbers were helped by the two great societies for aiding the *mutilés*, *Aide immédiate aux invalides et réformés de la guerre*, and the *Fédération nationale d'assistance aux mutilés*,¹⁰⁹ but adequate placement machinery has now been provided by the government and it is probable that in the future less work of this kind will be done by private societies. Both the Minister of Labor and the Minister of War have made it their business to organize placement bureaus.

The Minister of Labor, at the end of December, 1915, requested the prefect of each department to establish a system of employment bureaus in his department, the cost of maintaining these bureaus to be borne by the Minister of Labor.¹¹⁰ Later instructions (dated February 10, 1916) stated that existing public bureaus were to be utilized as far as possible, and that the placement of disabled men should not be separated from that of normal workmen. The effect of such a separation would be, wrote the Minister of Labor, a lowering of the wages of the

¹⁰² Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 173.

¹⁰³ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 217.

¹⁰⁴ Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, p. 126.

¹⁰⁵ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 217.

¹⁰⁶ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 180.

¹⁰⁷ Bourrillon, Maurice. Comment rééduquer nos invalides de la guerre. Paris, 1916, pp. 111-112.

¹⁰⁸ Todd, John L. A report on how France returns her soldiers to civilian life, in *American Journal of Care for Cripples*, New York, 1917, v, 21.

¹⁰⁹ Formation professionnelle. 15^e année, No. 1, p. 73.

Fédération nationale d'assistance aux mutilés. Bulletin No. 1, 1917, p. 7.

¹¹⁰ Todd, John L. A report on how France returns her soldiers to civilian life, in *American Journal of Care for Cripples*, New York, 1917, v, p. 23.

disabled, difficulties in their relations with normal workmen, differences between manufacturers employing normal workmen and those employing the disabled, and the tendency to concentrate the disabled in a small number of trades or industrial concerns. The Minister of Labor requested further that whenever any employment bureau found a man whose earning capacity could be increased by functional or vocational re-education, it should notify the central office.¹¹¹

The system of employment bureaus now operating in the different departments under the control of the Minister of Labor consists of municipal bureaus in the cities and towns and a central bureau in the prefecture. The central bureau acts as an exchange agency for the others. A main office in the Ministry of Labor in Paris is the coordinating agency for them all.¹¹²

The Minister of War, for his part, by a decree issued February 29, 1916, created in Paris a national placement office for discharged and disabled soldiers. A short time afterwards he found it was necessary to decentralize the work, and by a decree issued May 11, 1916, he ordered the establishment of a branch office in each of the military *régions*.¹¹³

An applicant at the national placement office fills out a form, thereby giving all the necessary information about himself. This form he then takes to the medical officer in attendance, who examines him, and fills out on the back of the form a complete statement of his physical condition. The form is then passed on to the officer in charge, who advises the man in regard to his future, and either puts him in communication with a vacancy in Paris or passes him on to the branch bureau in his native district. If the man is incapable of work without re-education, he is strongly urged to enter one of the schools.¹¹⁴

COORDINATION OF PLACEMENT THROUGH THE NATIONAL OFFICE

When the *Office National des mutilés et réformés de la guerre* (described in a preceding section)

¹¹¹ *Journal Officiel*, 1916, p. 1347.

¹¹² Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 35.

¹¹³ *Journal Officiel*, 1916, pp. 1634, 4232.

¹¹⁴ Norman, Sir Henry. The treatment and training of disabled and discharged soldiers in France. London, 1917, p. 29.

was established by a joint decree of the Ministers of War, Labor, and the Interior, the national placement offices attached to the Ministry of War and the various placement offices attached to the Ministry of Labor were merged, for the purpose of joint action, in the National Office.¹¹⁵

As a part of the coordinating work for which the National Office was created, the Office has organized a valuable system of intercommunication between the employment bureaus operating throughout the country. On the basis of reports transmitted to it by the different bureaus, it publishes every month an Employment Bulletin (*Feuille mensuelle de placements*) containing a list of the demands for work that have not been satisfied and the positions that have not been filled in each department. Through this information, a man who cannot find work in his own department or an employer who cannot find the man he wants may be served by the bureaus in some other department. The Employment Bulletin publishes also a list of the positions filled by each bureau, with an indication in each case of the disability of the man placed, so that all may know what disabilities are being found compatible with different kinds of work.

An even closer coordination has been effected by the National Office between the public and private employment bureaus of Paris and the department of the Seine. For them, there is prepared in the departmental placement office, a daily bulletin, which is distributed before two o'clock every afternoon to all the bureaus participating in the service. This bulletin contains a list of the positions unfilled by the bureaus where they were filed, a list of the positions announced vacant in preceding bulletins but since filled, and a list of those to which applicants have been sent and which are possibly no longer vacant. Any office which receives the bulletin has, therefore, at its disposal, for the benefit of the men it wishes to place all the offers of positions recorded in the different employment bureaus of the department.¹¹⁶

¹¹⁵ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, p. 35.

¹¹⁶ *Ibid.*, pp. 12-13.

PRINCIPLES OF PLACEMENT

Instructions on the subject of placement issued by the Minister of Labor and by the National Office state that men should be, whenever possible, replaced in their old trade and in the district where they lived before the war. The National Office has announced further that the greatest care should be taken to see that the situations in which applicants are placed are suited to disabled men. The employment should be stable, not seasonal, and working and living conditions should be good. Especially to be discouraged is the tendency to place men in any position which happens to turn up and to trust that the benevolence of the employer will make up for the workman's incapacity.¹¹⁷

Equal pay for equal work is generally accepted as the principle which should govern the employment of *mutilés*. In a report to the Inter-Allied Conference by the head of the central placement office attached to the Ministry of Labor and the permanent inspector of the Labor Bureau, it is stated that "all the manufacturers from whom the Labor Bureau has collected information on the employment of disabled men have declared that re-educated or readapted *mutilés* will be employed under normal conditions and that the work they do at home or in the shop will be paid for at the usual rates."¹¹⁸

LAWS CONCERNING THE EMPLOYMENT OF
DISABLED MEN

Two laws have been passed in France to help solve the problem of employment for disabled men. The law of April 17, 1916, provides that for five years after the close of the war, certain government positions not requiring full physical powers, reserved hitherto to non-commissioned officers of a certain length of service, shall be reserved for disabled soldiers and sailors without regard to their rank or length of service. Fathers of large families will have the preference for these positions. Furthermore, the law provides that government administrations and industrial or commercial concerns profiting from a con-

cession, monopoly, or subvention from the state shall be obliged to make out a list of positions not reserved by the old law which might be reserved for disabled men. In future, no industrial or commercial enterprise can obtain a concession, monopoly, or subvention from the government except on condition that it reserve a certain number of positions to disabled soldiers. Succeeding decrees enumerated the classes of disabilities compatible with the different positions and stated the conditions under which candidates would be accepted.¹¹⁹

Many men after the passage of this law had the idea that it would be easy for them to step into a government position. The facts are, however, that the positions are far too few to satisfy all the aspirants and that the conditions imposed by the government are so strict as to debar many of them.

The National Office has observed, with respect to this law, that by admitting to reserved positions the slightly injured men who could easily find employment elsewhere, the law is contrary to the interests of the most severely wounded. The National Office has also expressed regret that in the classification of disabilities compatible with different positions, no account is taken of re-education.¹²⁰

The law of November 25, 1916, was passed to overcome a tendency on the part of employers to discriminate against disabled men on account of the increased cost of workmen's compensation insurance. It could not be disputed that disabled men were more exposed to accidents and more liable to suffer serious consequences from them than were normal workmen, and it was inevitable that insurance companies would demand higher premiums when disabled men in large numbers were employed. If the employer should be asked to bear this additional burden, it must be expected that he would refuse to employ disabled workmen.¹²¹

To meet this situation, the new law provided that when a disabled soldier met with an industrial accident, the court which fixed the amount

¹¹⁷ *Ibid.*, p. 161.

¹¹⁸ Conférence interalliée pour l'étude de la rééducation professionnelle et des questions qui intéressent les invalides de la guerre. Paris, 1917, p. 251.

¹¹⁹ Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 143-144.

¹²⁰ *Ibid.*, pp. 14-15.

¹²¹ Jadé, Jean. Les accidents du travail pendant la guerre. Paris, 1917, pp. 153-154.

of compensation due him should determine whether the accident was caused by his previous disability and to what extent the permanent reduction of his earning capacity following his accident was due to his disability. If the accident was caused exclusively by the disability, the employer should be absolved from paying any part of the allotted compensation; if the reduction of capacity was due in part to the previous disability, the employer should be required to pay only that part of the compensation which corresponded to the actual consequences of the accident. The compensation from which the employer was thus absolved should be paid to the workman by the state out of a fund raised by a tax on employers and on insurance companies.¹²²

Inasmuch as this tax is levied on all firms regardless of whether they employ disabled men or not, there is no longer any reason for any employer to discriminate against cripples on the ground of the greater insurance risks.

Prosthetic Appliances

GOVERNMENT PROCEDURE TOWARD MEN NEEDING A PROSTHETIC APPLIANCE

The French government has engaged itself to supply every maimed and crippled soldier with the artificial limb or other appliance suited to his needs.¹²³ It fits and distributes all appliances in certain institutions of prosthetic equipment (*centres d'appareillage*) which it has established in different parts of the country—namely, at Paris, Rennes, Bourges, Nancy, Lyons, Bordeaux, Clermont-Ferrand, Marseilles, and Montpellier. Men who have suffered an amputation and those with other injuries requiring them to wear an appliance are sent from the hospital where their wounds have been treated to the institution of prosthetic equipment into which that hospital empties or to the one nearest their home. This transfer is effected as soon as but not before their wounds, from a surgical standpoint, are

completely cured. Men sent to an equipment institution must need no treatment other than functional re-education, which can be supplied them by the service of physiotherapy attached to the institution.

On arrival at the institution of prosthetic equipment, men are subjected to a thorough examination, the results of which are filed in a booklet. For amputation cases, the booklet records (1) the physical condition of the wounded man, (2) a photograph of his stump, (3) photographs of the limb above the amputation and of the limb on the other side, (4) an x-ray photograph of the stump, (5) measurements, (6) a plaster cast of the stump, and (7) the functional value of the stump. For men without an amputation but with injuries requiring an appliance, the booklet records (1) the physical condition of the man, (2) an electro-diagnosis (if the injury is of the nerves or muscles), or (3) an x-ray photograph (if the injury is of the joints or bones), (4) measurements, (5) a plaster cast if necessary, and (6) the functional value of the limb. On the basis of these facts, an artificial limb or other appliance is ordered made to measure for each man.

APPLIANCES SUPPLIED

In principle the choice of what kind of an appliance a man shall have is not left to the man himself, but is decided by the physician in charge of the equipment service. In making the decision, however, the physician considers as far as possible the man's wishes and his future occupation or social position.

Every man receives first a temporary and then a permanent appliance, both of which he takes with him when he is discharged. It is expected that the temporary appliance will be used in after life when the other must be repaired. The man who has lost a leg or foot receives as a temporary appliance either a wooden peg leg or an orthopedic shoe, and as a permanent appliance, depending on his occupation, either an articulated leg or an articulated peg with an extra foot and leather calf for best. The man who has lost both legs at the thigh may choose for his permanent appliance either two articulated pegs or two articulated legs, but he is advised to take the

¹²² Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 146-147.

¹²³ The source of this and the following statements with regard to prosthetic appliances is the *Circulaire du Sous-secrétariat du Service de Santé*, du 2 juin, 1916, *Journal des mutilés, réformés, et blessés de guerre*. Paris, 1916, No. 12, p. 4 ff.

former. Extra feet are not given with these as they are impracticable for double amputations. When an orthopedic shoe is assigned to a man, he receives also a regular shoe for the other foot.

For arm amputations the kind of appliance supplied depends upon the length of the stump. If a man has a stump more than five centimeters long, he receives a working arm with ring, hook, 'universal pincers', or other similar device for holding an object, and in addition a dress forearm and hand of wood. Articulated hands are considered a luxury. If a man has a stump less than five centimeters long, he has not the leverage to lift a working arm, and he receives a dress arm only. Men who have lost both arms are entitled to appliances which will enable them to perform the necessary acts of daily life. They are, therefore, allowed one or two articulated hands.

Appliances for other injuries are as varied as the injuries. Among them may be mentioned appliances for radial and sciatic paralysis, skull plates, abdominal belts, thoracic corsets, etc.

METHODS OF PROCURING APPLIANCES

The government procures the appliances which it gives out either by direct manufacture in workshops attached to the institutions of prosthetic equipment or by purchase from artificial limb manufacturers, whose entire output it can, when necessary, requisition. Shops in which the government manufactures its own appliances are manned in some places by mobilized experts, and in others by disabled men learning the trade. In the shops where the trade is being taught some mobilized workmen are usually employed together with disabled workmen in order to increase production.

Models for all appliances furnished by the government have been determined by an Orthopedic Commission (*Commission d'études de l'orthopédie*) attached to the Ministry of War. This Commission has drawn up an elaborate book of specifications (*cahier de charges*) giving descriptions and prices for each type of appliance, to which specifications all articles delivered to the

government by private manufacturers must conform. A committee attached to each institution of equipment inspects the factories making appliances for that institution to see that the workmanship and the materials are up to standard. On their delivery to the institution all privately made appliances are again inspected by a receiving committee, which makes sure that they conform to specifications and that they are perfectly fitted to the men for whom they were ordered. In order that there may be no mistake about the fit, a man must wear his appliance eight days before it will be accepted by the committee.

REPAIR OF APPLIANCES

Not only has the government engaged to supply every man with the appliance he needs, but it has also undertaken to repair and replace that appliance when necessary during a man's lifetime. Official announcements have stated that any man who needs to have his appliance repaired or replaced should send it collect to the institution where he received it. The needed reparation will then be made at the government's expense. If the man's presence at the institution is judged necessary, he will receive free transportation.

DIFFERENT MODELS USED

The articulated legs furnished by the government were at first of leather braced with steel uprights, but they were disliked by the *mutiles* because of their weight, and now legs of the American type of hollowed wood are being more extensively manufactured and distributed.

Different models for working arms have been invented at the various government workshops. Some are of the type called 'universal pincers'; others are variations of the old-fashioned ring and hook; others are special devices for different trades. The 'universal pincers' invented by Professor Amar, the head of the Orthopedic Commission, are highly thought of. In these the forearm consists of a strong steel rod ending at the elbow in a joint which permits flexion and rotation and at the wrist in a ball and socket joint to which is attached a powerful pair of jaws

or pincers. All of these joints may be fixed in any position. When desired the joints can be detached, and the wooden hand supplied by the government for dress wear can be substituted for them.¹²⁴ Other successful models for 'universal pincers' are the *Pince Lumière* made at Lyons and the *Pince Estor* made at Montpellier.¹²⁵ Among improvements on the old-fashioned ring and hook are the Aubert turning ring made at Lyons and the oscillating hook, called the 'laborer's hand', devised by Dr. Boureau of Tours.¹²⁶

A whole series of hands for different occupations has been invented by Dr. Boureau. Besides the laborer's hand, he has a hand for a vine-grower, for a postman, a chair caner, a leather cutter, a solderer, a plumber, a mechanic, a carpenter, a packer, a jeweler, a priest, and a driver of animals or tractors.¹²⁷ At Tourvielle are made appliances for chair-caners, brush-makers, coopers, galoche-makers, and agriculturists; at Montpellier for mechanics, designers and engravers, wood-turners, and agriculturists; at Bordeaux for mechanics, forge-workers, carpenters, basket-makers, etc.¹²⁸

Agriculturists find useful working arms in the toolholders invented by M. Jullien of Lyons, which he has called '*l'agriculteur*' and '*le cultivateur*'. The first consists of a perforated steel cylinder open at one end to receive the handle of the tool, which is fastened firmly in place by a screw through one of the perforations. The other end of the cylinder is attached by a rotary joint to a gimbal joint, which is itself attached by another rotary joint to the covering of the stump. By means of this system of articulation a tool guided by the other hand can be moved in any plane and turned on any axis. In the second

Jullien tool-holder the cylinder is open at both ends, so that the handle of the tool can be pushed through any distance.¹²⁹

Other practical devices for farm workers are Dr. Boureau's hands for laborers and vine-growers, the Aubert oscillating ring and hook, and an arrangement of straps worked out by two Lyons orthopedists from photographs of a device used at Vienna.¹³⁰ Farm workers with a leg amputated, whose activities would be hindered by their peg sinking into soft earth or plowed ground, find it convenient to use a leg turned with an enlarged end like an elephant's foot, or to have a light wooden sandal which they can fasten to the end of their peg.¹³¹

Certain other devices which can hardly be called prosthetic appliances have been found useful in some trades. Shoemakers who have lost one or both legs use a short padded crutch under their knees. They have found that they can hold their work more firmly when their knees are supported in this way than when they are wearing a peg or an articulated leg. Harness-makers and saddlers with a leg amputated at the thigh use a heavy curving sheet of metal to extend their stump so that they can hold their work by pressing their one knee against this metal. This device was invented by a maimed saddler and is now made and used at Saint-Maurice.¹³² A post-seat which makes bench work easier for a man who has lost his leg at the thigh has been invented at Mme. Weill's school for wood-workers.¹³³ For farm workers who have lost their leg at the thigh there has been devised a mowing-machine seat with an extension at one side of the front to support the stump; and for those who have lost an arm, a mowing-machine seat equipped with hooked arms to hold the reins.¹³⁴

¹²⁴ Todd, John L. A report on how France returns her soldiers to civilian life, in *American Journal of Care for Cripples*, New York, 1917, v. 11.

¹²⁵ Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 78.

¹²⁶ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, p. 112.

¹²⁷ Musée pédagogique. Melun, 1917, p. 17.

¹²⁸ Les mutilés aux champs. Paris, 1917, pp. 22-24.

¹²⁹ Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 81.

¹³⁰ Bulletin de l'œuvre des mutilés de la guerre de la XVI^e région à Montpellier. October, 1916, pp. 26-35.

¹³¹ Gourdon, J. Rapport général sur l'école normale et pratique de rééducation professionnelle des mutilés et estropiés de guerre de Bordeaux. Bordeaux, 1917, p. 14.

¹³² Hirschfeld, Gustave. Tourvielle. Lyon, 1917, pp. 76, 116.

¹³³ Rééducation fonctionnelle et rééducation professionnelle des blessés. Paris, 1917, pp. 81-89.

¹³⁴ Hirschfeld, Gustave. Tourvielle. Lyon, 1917, p. 114.

¹³⁵ Rééducation fonctionnelle et rééducation professionnelle. Paris, 1917, pp. 45-46.

¹³⁶ Weill, Mme. David. Les mutilés et estropiés de la guerre dans la menuiserie et quelques autres industries du bois. Paris, 1917. Drawings in appendix.

¹³⁷ Les mutilés aux champs. Paris, 1917, pp. 53, 54.

APPENDIX I

LAW OF JANUARY 2, 1918, CONCERNING THE
RE-EDUCATION OF DISABLED SOLDIERS¹

Article 1. Every soldier or sailor or former soldier or sailor disabled by wounds received in the war or by sickness contracted or aggravated during the war can demand his enrolment in a school of vocational re-education with the object of being retrained for work and placed in employment.

His demand can be addressed directly to a school of re-education or to the prefect of the department where he resided before the war, or to the departmental committee for disabled and discharged soldiers of that department or to the National Office for disabled and discharged soldiers.

Soldiers undergoing treatment or awaiting their discharge should address their demand to the head physician of the hospital where they are staying.

Article 2. The National Office for disabled and discharged soldiers, which is here declared to be a public organization attached to the Ministry of Labor, forms a connecting link between the public administrations and the private societies concerned with the soldiers mentioned in Article I. Its purpose is to centralize all information about the work of the said administrations and societies, to aid and facilitate the readaptation to work of the above-mentioned soldiers, to study laws and rulings which can be interpreted in their favor and to see that these laws are observed, and in all ways to assure to all discharged and disabled soldiers the continued aid due them from a grateful nation.

Article 3. The resources of the National Office for disabled and discharged soldiers comprise:

1. The annual credit assigned to the budget of the Minister of Labor under the special heading, 'National Office for disabled and discharged soldiers'; and other subventions which may be granted to the National Office by the state, the departments, and the communes.

2. Gifts and legacies of any kind and from any source which may be made to the National Office as a whole or to any particular category of soldiers among those mentioned in Article I. Whenever such gifts or

legacies are intended for the benefit of the soldiers or former soldiers of a specified region they shall be divided among the departmental and local committees of that region.

3. All other resources which may be assigned to the National Office by law.

Article 4. In the event of the abolishment of the National Office or of a departmental committee, the value of gifts and legacies made to the Office or the committee shall be assigned by a decree of the Council of Ministers and on the report of the Minister of Labor to public organizations of recognized public utility which are in a position to execute the intentions of the donors.

Article 5. In every department there shall be founded departmental and local committees for disabled and discharged soldiers. A decree issued after consultation between the general council of the department and the National Office shall fix the districts in which these committees shall have control and the number of their members.

These committees may receive subventions from the state, from departments, and from communes and also gifts and legacies, under the conditions prescribed by Article 910 of the civil code concerning organizations of public utility.

They may not, however, possess other buildings than those required for their meetings or for work on behalf of the soldiers mentioned in Article I.

Article 6. A decree issued by the council of Ministers shall determine how this present law shall be carried into effect, namely:

1. What shall be the personnel of the National Office and of the departmental committees, and under what conditions private societies will be represented in these organizations.

2. Under what conditions subventions from the state shall be granted to departmental committees and to re-educational institutions, and how the disposition of these subventions shall be controlled.

3. What papers must be presented to departmental committees by the soldiers mentioned in Article I, who wish to benefit from the provisions of the first paragraph in Article 7.

Article 7. During the vocational re-education of a soldier whose pension is pending, his family continues to draw the separation allowance. If a man is drawing his pension, and if the twelfth

¹ *Journal des mutilés, réformés, et victimes de la guerre.* Paris, 1918, No. 50, p. 2.

part of the pension is less than the monthly sum previously granted to the family as a separation allowance, the difference will be paid to the family during the man's re-education.

The departmental committee determines the length of the period of training during which the family benefits from the provisions of the preceding paragraph. A man can make an appeal to the National Office from the departmental committee's decision on this point. He must make his appeal within one month after being informed of the committee's decision.

Article 8. In no case may the amount of the pension be reduced because of vocational re-education or readaptation to work.

Article 9. The Minister of Labor shall present to the President of the Republic an annual report on the work of the National Office, the results obtained by vocational re-education, the placement of disabled and discharged soldiers, and the distribution of state funds.

This report shall be published in the *Journal Officiel*.

APPENDIX II

LIST OF RE-EDUCATIONAL SCHOOLS¹

Institut national professionnel des invalides de la guerre, Saint-Maurice (Seine).
 École spéciale des mutilés de la ville de Paris et du département de la Seine, rue et place du Puits-de-l'Ermite, Paris.
 L'Aide immédiate aux invalides et réformés de la guerre (30 workshops and courses receiving support from the society), 325, rue Saint-Martin, Paris.
 L'Art et la Femme, Lycée Carnot, Paris.
 L'Atelier, 5, rue de la Durance, Paris.
 L'Atelier des soldats mutilés de la guerre (Union centrale des arts décoratifs), 2, avenue Montespan, Paris.
 Les blessés au travail, 154, avenue Champs-Élysées, Paris.
 Chambre syndicale de la bijouterie, joaillerie, orfèvrerie, 2, rue de la Jussienne, Paris.
 Chambre syndicale de la bijouterie fantaisie, 25, rue Chapon, Paris.
 Chambre syndicale des bourreliers-selliers, 3, rue de Lutèce, Paris.
 Chambre syndicale des chausseurs, 51, rue des Épinettes, Paris.

¹Office national des mutilés et réformés de la guerre. Bulletin No. 1. Paris, 1917, pp. 26-34. 168-184.

Comité intersyndical d'apprentissage des industries du vêtement, 51, rue des Épinettes, Paris.

Société pour le développement de l'apprentissage dans les métiers du bâtiment, 51, rue des Épinettes, Paris.

Écoles des mutilés de la Fédération nationale d'assistance aux mutilés, 28, quai de la Râpée; 140, avenue des Champs-Élysées, Paris.

École de rééducation des mécaniciens de l'École dentaire française, 29, boulevard Saint-Martin, Paris.

Fondation Marcel Hirsch, 9, rue de l'Éperon, Paris.

Annexe de l'Institut national de Saint-Maurice, Hôtel-pension, 4, rue Rondelet, Paris.

Le Jouet lozérien, 4, rue Lavoisier, Paris.

Maison du soldat du XIII^e arrondissement, 47, rue Jenner, Paris.

Écoles de l'Union des colonies étrangères, Grand Palais, Paris; Maison-Blanche, Neuilly-sur-Marne; 28, quai Debilly, Paris; Juvisy (Seine).

École Rachel, 140, rue de Bagneux, Montrouge (Seine).

École professionnelle des mutilés de la guerre, Oyonnax (Ain).

Comité départemental des Alpes-Maritimes, Préfecture, Nice (Alpes-Maritimes).

École de vannerie de l'Aide aux réfugiés, 14, rue Mas-séna, Nice (Alpes-Maritimes).

École de rééducation professionnelle, Villa Beauregard, Antibes (Alpes-Maritimes).

École de rééducation professionnelle, Troyes (Aube).

École de rééducation professionnelle des mutilés et blessés de la guerre, 2, rue Saint-Lambert, Marseille.

École départemental de la rééducation professionnelle des blessés et mutilés de la guerre, La Délivrande (Calvados).

École de vannerie de l'Aisne, Pavillons-sous-Bois (Seine).

École professionnelle de rééducation des blessés et mutilés, Bourges (Cher.).

Centre de rééducation professionnelle des mutilés de la guerre, 9, rue Poitzmoguer, Brest (Finistère).

École pour la rééducation des mutilés de la guerre, 24, rue Colbert, Nîmes (Gard.).

École départementale professionnelle des mutilés, 4, rue des Récollets, Toulouse (Haute-Garonne).

École pratique et normale de rééducation professionnelle des mutilés et estropiés de la guerre, 30, rue du Hamel, Bordeaux (Gironde).

École professionnelle de blessés de la XVI^e région, Hôpital général, Montpellier (Hérault).

Centre de rééducation professionnelle des mutilés et invalides de la guerre, Tours (Indre-et-Loire).

École de rééducation professionnelle diamantaire des mutilés de la guerre, Saint-Claude (Jura).

École professionnelle pour les mutilés de la guerre (pipiers), Saint-Claude (Jura).

- École professionnelle des blessés militaires de la Loire, 17, rue Benoit-Malon, Saint-Étienne (Loire).
- Œuvre orléanaise de rééducation et de placement de mutilés, 10, rue Chappon, Orléans (Loiret).
- Comité de l'Anjou pour les mutilés de la guerre, Préfecture, Angers (Marne-et-Loire).
- Œuvre de rééducation des mutilés de la guerre, Sous-préfecture, Cherbourg (Manche).
- École de rééducation de l'Association lorraine d'assistance par l'éducation professionnelle et le travail aux invalides de la guerre, Nancy (Meurthe-et-Moselle).
- École de rééducation professionnelle des mutilés de la guerre, rue Jules-Simon, Lorient (Morbihan).
- Centre de rééducation professionnelle de l'Œuvre nivernaise des mutilés de la guerre, 5, rue du Lycée, Nevers (Nièvre).
- École professionnelle des mutilés, Calais (Pas-de-Calais).
- École professionnelle des blessés de guerre, rue Sidoine-Appollinaire, Clermont-Ferrand (Puy-de-Dôme).
- École de rééducation professionnelle des mutilés de la guerre, 11, rue Raymond-Planté, Pau (Basses-Pyrénées).
- Centre de rééducation professionnelle des mutilés de la guerre, Bayonne (Basses-Pyrénées).
- École Joffre, 41, rue Rachais, Lyon.
- École de Tourvielle, 25, chemin de Tourvielle, Lyon.
- École Général-Pau, 112, cours Gambetta, Lyon.
- Association professionnelle du Rhône, Lyon.
- Œuvre des mutilés de la guerre de Saône-et-Loire, Mâcon (Saône-et-Loire).
- Comité départemental d'aide aux soldats mutilés sarthois, Le Mans (Sarthe).
- École de rééducation professionnelle des mutilés, rue Jean-Jacques-Rousseau, Annecy (Haute-Savoie).
- École de rééducation professionnelle des blessés de la guerre, 56, rampe Bouvreuil, Rouen (Seine-Inférieure).
- Œuvre havraise de rééducation professionnelle, Le Havre (Seine-Inférieure).
- Œuvre tarnaïse de rééducation professionnelle des mutilés de la guerre, Albi (Tarn).
- Centre de rééducation professionnelle du comité d'assistance aux invalides et mutilés de la guerre, Limoges (Haute-Vienne).
- Le jouet français, Limoges (Haute-Vienne).
- École Victor-Vassal, Oran (Alger).
- École pratique de commerce et d'industrie, Roanne (Loire).
- École pratique de commerce et d'industrie, Agen (Lot-et-Garonne).
- École nationale d'arts et métiers, Angers (Marne-et-Loire).
- École pratique d'industrie, Cherbourg (Manche).
- École de commerce, Boulogne-sur-Mer (Pas-de-Calais).
- École pratique de commerce et d'industrie, Thiers (Puy-de-Dôme).
- École nationale d'arts et métiers, Cluny (Saône-et-Loire).
- École nationale d'horlogerie, Cluses (Haute-Savoie).
- École pratique d'industrie, Elbeuf (Seine-Inférieure).
- École d'horticulture (en formation), Antibes (Alpes-Maritimes).
- École pratique d'agriculture, Aurillac (Cantal).
- École pratique d'agriculture, L'Oisellerie (Charente).
- École professionnelle de laiterie, Surgères (Charente-Inférieure).
- Station-école de distillerie, tonnellerie et motoculture, Saintes (Charente-Inférieure).
- Section agricole pour mutilés, Bourges (Cher).
- École d'agriculture, Châtillon-sur-Seine (Côte-d'Or).
- École pratique d'agriculture, Genouillac (Creuse).
- École nationale de laiterie, Mamirolle (Doubs).
- École d'agriculture, Plougastel (Finistère).
- École régionale d'agriculture, Ondes (Haute-Garonne).
- Centre départemental de rééducation professionnelle agricole de Beaulieu, Auch (Gers).
- Ferme-école, La Hourre (Gers).
- École spéciale d'agriculture, Blanquefort (Gironde).
- École pratique d'agriculture, La Réole (Gironde).
- École nationale d'agriculture, Montpellier (Hérault).
- École nationale d'agriculture, Rennes (Ille-et-Vilaine).
- École nationale de laiterie, Poligny (Jura).
- École pratique d'agriculture, Grand-Jouan (Loire-Inférieure).
- École nationale d'osiericulture et de vannerie, Fayl-Billot (Haute-Marne).
- École pratique d'agriculture, Tomblaine (Meurthe-et-Moselle).
- Fruitière-école, Lannemezan (Hautes-Pyrénées).
- École pratique d'agriculture, Écully (Rhône).
- Institut agricole des mutilés: École Sander, Limonest (Rhône).
- École pratique d'agriculture, Fontaines (Saône-et-Loire).
- École nationale d'agriculture, Contamines-sur-Arve (Haute-Savoie).
- École spéciale d'agriculture, Grugny (Seine-Inférieure).
- École nationale d'horticulture, Versailles (Seine-et-Oise).
- École nationale d'agriculture, Grignon (Seine-et-Oise).
- Bergerie nationale, Rambouillet (Seine-et-Oise).
- École pratique d'agriculture, Gambais (Seine-et-Oise).
- École spéciale d'agriculture, Noisy-le-Grand (Seine-et-Oise).
- École pratique d'agriculture, La Brosse (Yonne).

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33 p
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**Provision for the Re-education of Belgian
War Cripples**

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Provision for the Re-education of Belgian War Cripples

The outstanding fact about re-education for Belgian war cripples is that it is absolutely compulsory. According to a decision taken by the Minister of War in November, 1914, Belgian soldiers who are incapacitated by their wounds from following their former trade or occupation are not discharged and sent home at the end of their hospital treatment, but are declared 'candidates for discharge' and sent to a re-educational school. They remain nominally soldiers, under army control and subject to all military laws and regulations.¹

Compulsory re-education has been accepted without dispute by Belgians because the majority of the soldiers have no home to which they can return. With the larger part of the country occupied by the enemy, it is impossible for them to go back to their old way of life. There is no counter-attraction to make re-education distasteful.

In the early days of the war, before re-education had been decreed by the authorities, many disabled soldiers were discharged from the hospitals and from the army and left to shift for themselves. Those who were strong enough and had ambition readily found work in France or England, but many were so shattered in body, or so demoralized by their experiences, that they wandered from place to place, bewailing their lot and begging for charity. In order to rescue these men from their distress, the decree which made re-education compulsory for men still in the army was extended to all discharged Belgian soldiers. All discharge papers were revoked, and all discharged soldiers were required to undergo a new physical examination. Some were discovered to be still capable of military service and were taken back into the army; of the others, those that had found steady work were allowed to remain where they were, on leave of absence

without pay; those that were drifting about the country were sent to the military hospitals and to the *Dépôt des Invalides* at Sainte-Adresse, which had just been founded by private charity as a refuge for disabled and destitute veterans.²

It was now seen that the condition of some of these men could be greatly improved by functional re-education—the name given by the French to the treatment which is designed to restore to injured joints, nerves, and muscles their power to function—and that others would require vocational training before they would be able to earn a living. Measures to provide the needed treatment and training were, accordingly, soon inaugurated by the government.

FUNCTIONAL RE-EDUCATION

An *Institut de physiothérapie et d'orthopédie*, which has received the name of the *Hôpital Anglo-Belge* in recognition of the aid furnished by the English Red Cross, was opened in Rouen in December, 1914. The first patients received at this institution were men who had been previously discharged from the army without having received the treatment which would put them in the best possible physical condition, but later patients came directly from the *ambulances* at the front. As their numbers increased, annexes were organized at Orival and Saint-Aubin les Elbeuf, and in 1916 a new model hospital was built at Bon Secours.

Functional re-education, as it was carried on first at the *Hôpital Anglo-Belge* and later at Bon Secours, makes use of the different curative methods included under the term 'physiotherapy'—namely, mecano-therapy, thermo-therapy, electro-therapy, massage, and curative gymnastics. The machines used in the department of mecano-therapy resemble in principle the Zander machines, but are somewhat different

¹ De Paenw, Léon, *La rééducation professionnelle des soldats mutilés et estropiés*. Paris, 1917, p. 13.

² *Ibid*, p. 15.

in detail. No machines which allow the patient to remain passive are used, but only those which demand active muscular effort. Since it was practically impossible to buy the apparatus, most of it has been made by the patients themselves in the shops of the technical school which was taken over for the hospital. Under thermotherapy are included hot air baths, hot water baths, and local hot air applications. The electrical service makes use of X-rays, sinusoidal and faradic currents, and hydro-electrical baths.³

ARTIFICIAL LIMBS

The orthopedic service of the *Institut de physiothérapie et d'orthopédie* at Rouen includes orthopedic surgery and the making and fitting of artificial limbs. As Belgium had no facilities for making artificial limbs, having before the war received her entire supply from Germany, shops had to be created by the medical authorities, and mechanics, woodworkers, and shoemakers had to be drawn from men unfit for military service and from the *mutilés* themselves and trained for the work. The artificial legs furnished are of two kinds: a leg of moulded leather similar to the French models, and a leg of hollowed wood called the American type. The dress arm of moulded leather has a rigid hand with an articulated thumb, which hand can be exchanged for a hook or ring when desired. The working arm furnished is the old Gripouilleau model formed of graduated hooks, but improved by a universal joint at the wrist.⁴

VOCATIONAL RE-EDUCATION

There are in Belgium—that is to say, in exiled Belgium, on French soil—two large schools which provide vocational training for disabled soldiers.

The *École nationale belge des mutilés de la guerre* at Port-Villez was organized by the Minister of War and is entirely supported by him. The *Dépôt des Invalides* at Sainte-Adresse is a private institution, founded by M. Schollaert, the president of the Belgian House of Representatives. In addition to these two large schools, shops for readapting men to work have been or-

ganized in connection with the hospital of Bon Secours at Rouen.

THE SCHOOL AT PORT-VILLEZ

The school at Port-Villez was built by the Ministry of War on land presented to the government for the purpose by a Belgian gentleman. It is situated on a plateau overlooking the Seine, about half-way between Paris and Rouen, in the midst of a beautiful and fertile country. The nearest town is Vernon in the department of the Eure.

On July 12, 1915, a detachment of auxiliary engineers of the Belgian army began to clear the ground of stumps and copses in preparation for the erection of buildings. On August 21, when only about a tenth of the construction had been completed, the first group of pupils arrived from the hospitals. In a year from that time 1,200 men were being re-educated there.⁵

The school has the appearance of a vast camp with its ninety-two wooden barracks arranged in three rows, each barrack being of the type of the portable field hospital huts with double walls and cement foundations. At one end of the row of barracks is the large meeting hall, and beyond that the officers' quarters and the infirmary. At the other end are a steam sawmill and joinery which were already on the place and a shed which has been transformed into a shop for hand carpentry. Beyond are the garage and repair shops for trucks and automobiles, and farther still the stables and the poultry yard. In front of the barracks is a large garden. Buildings have been put up as there was a demand for them, and greater additions are being planned for the future. It is hoped that the shops can soon be transferred to large new halls so that the existing barracks can all be used for dormitories.

ORGANIZATION OF THE SCHOOL

The work of the school is divided among three departments: the medical service, the academic department, and the department of technical training. When the school was first organized, the chief physician of the medical service was made the administrative head, but now the

³ Deltrenre, Dr. Armand, *L'Hôpital Anglo-Belge*. Port-Villez, 1916, pp. 10-20.

⁴ *Ibid*, pp. 24-28.

⁵ De Paeuw, Léon, *La rééducation professionnelle des soldats mutilés et estropiés*. Paris, 1917, p. 63.

three departments have been placed on an equal footing and an army colonel has been made the general superintendent.

THE MEDICAL SERVICE

The first duty of the medical service is to provide functional re-education for those that need it. As at Rouen, the means employed here are exercising apparatus, electricity, heat, massage, curative gymnastics and fencing, games, and sports. The treatment appropriate to each man's condition is given to him at certain hours of the day during the course of his apprenticeship at a trade.

A second duty of the medical service is to watch over the vocational training of the men for the purpose of observing the effect of work upon their physical condition and the influence of their handicap upon their efficiency. In the experience of the school the improvement effected through physiotherapy and regular gymnastics is greatly augmented by the beneficial exercise which the pupil gets in the workshop. It has even happened that a man's condition has been improved through work after another institution had declared that nothing more could be done for him by physiotherapy. Pupils in the commercial courses who get no exercise in their work take special gymnastics and exercises.

In addition to these responsibilities, the medical service is charged with the manufacture of any needed orthopedic or prosthetic appliances. Men sent to Port-Villez from the hospitals at Rouen have been provided with artificial limbs, but special appliances which make it easier for crippled men to work at certain trades are manufactured and supplied at the school. The cooperation of the shoemakers and saddlers, the mechanics, and the woodworkers is enlisted in this work.⁶

THE ACADEMIC DEPARTMENT

The academic department provides general schooling for men learning trades, theoretical instruction in the trades, and special courses for men who wish to fit themselves to be clerks with business concerns or with the government.

⁶ *Ibid*, pp. 70-80.

Men in the trades are divided into three groups—the illiterate, the men who have had only the rudiments of a schooling, and those who have gone through a grammar school. These groups are again divided into classes, which receive two hours of instruction a day in school subjects. Each class is made up of men speaking the same language, and the instruction is given, naturally, in that language. Out of twenty-eight classes, eleven were conducted in French and seventeen in Flemish. Men in the higher classes have passed excellent examinations in writing the two languages and in solving arithmetical problems of real difficulty. A special course for men who have passed through the higher class is given one hour a day. It includes bookkeeping adapted to the needs of artisans and simplified contemporary history.

The plan of the theoretical instruction is the same for all the trades. It includes the study of tools and machinery, of raw materials—their physical and chemical properties, their source, conditions of purchase, etc.—the processes of the trade, how to determine the sale price of the articles made, and how to place them on sale. The director of this department has aided the shop foremen by suggesting to them good teaching methods and by sketching lesson plans. Once a week he and the technical director hold a meeting of all the shop foremen and instructors to discuss methods and technical questions. Everything is done which can help to make the theoretical instruction a real aid to the practical work. Wood and metal workers attend special classes in draughting, not to become draughtsmen but so that they may with facility read and make working-drawings.⁷

The commercial courses are for men who on account of their previous education and circumstances wish rather to obtain an office position than to learn a trade. They were originally organized by the Belgian government in a special school at Mortain (Manche), but before the school had been running a year, through some conflict of interests or some misunderstanding, the old abbey which housed it was ordered transformed into a hospital. Arrangements were then made to transfer the school to Port-Villez and to

⁷ *Ibid*, pp. 85-93.

incorporate it in that institution. It is known now as the 'school of clerks of commerce, industry, and administration' (*École des auxiliaires du commerce, de l'industrie, et de l'administration*).

In this school there are four departments: a primary department, a department preparing for civil service positions, a commercial department, and a normal department for the training of teachers. Pupils in the primary department are taught French, Flemish, arithmetic, geometrical forms, elementary principles of business, history, geography, and elements of social economics. Many of these men are former railroad employees whom the railroads, being government concerns, are in honor bound to take back into service. Since they are unable owing to their wounds to resume their old work as engineers, brakemen, or porters, they are being trained for ticket-sellers, station agents, and office employees. A few are learning telegraphy. Other men in this department are being trained for clerks, cashiers, and shop salesmen with private concerns. All together 170 men were enrolled in this department at the end of 1916. The courses are divided into two terms of six months each.

Courses of the department preparing for civil service positions include the two national languages, a third language, writing, history, geography, business, constitutional law, arithmetic, elements of algebra, plane and solid geometry, elements of physics, social economics, stenography, and typewriting. Fifty pupils were in this department at the end of 1916. The work is divided into three terms of four months each.

The commercial department is divided into two terms of six months each. During the first term all pupils study the elements of bookkeeping, commercial arithmetic, four languages, commercial geography, and stenography and typewriting. During the second term they specialize as expert bookkeepers, commercial correspondents, or wireless operators. There were thirty-five men in this department.

Of the fifteen men in the normal department at the end of 1916 the majority were non-commissioned officers obliged to give up the careers they had planned for themselves because of their reduced physical powers. They receive their training as teachers during two terms of six

months each. For practice teaching they conduct a class for the children of officers and married teachers whose families have established themselves in the vicinity of the school.

The teachers in the four departments of the 'school of clerks' have been borrowed from the stretcher-bearers' corps and other auxiliary branches of the service. Before the war they were school and college teachers, expert accountants in the large banks, and men holding important administrative posts.⁸

THE DEPARTMENT OF TECHNICAL TRAINING

Over forty trades are taught in the shops managed by the department of technical training. The length of time necessary for learning a trade is not definitely fixed, so greatly does it depend on a man's native aptitude, and his handiness in overcoming his disability, but the management of the school has found that good teaching methods can greatly reduce the time supposedly required for an apprenticeship in a given trade. By beginning with simple operations and following them with more difficult ones in well-ordered gradation, by avoiding the repetition of processes that have been perfectly mastered, and by constantly stimulating the pupil's interest, the shop foremen have obtained excellent results in a comparatively short time. In the experience of the management, lessons in school subjects and theoretical instruction also quicken the progress of an apprentice.

The shops are operated for production as well as for teaching, but good teaching is never sacrificed for the sake of increasing production. A large part of the product of the shop fills orders from the Belgian government, but when these orders do not provide the variety necessary for a thorough apprenticeship, the school takes orders from private firms.

What might be an obstacle to good apprenticeship—the continual arrival of new men—is overcome by grouping the new-comers together and starting them at work under the careful supervision of a monitor. Later new groupings are made in accordance with the man's ability and progress. All work is carefully supervised by monitors, foremen, and doctors, and a man is

⁸ *Ibid.*, pp. 164-176.

never allowed to become discouraged. In some trades there is a monitor for every four men.⁹

The following brief account of the different shops describes the work they were doing in the latter part of 1916.¹⁰

Machine work in carpentry—the use of circular saws, band saws, power planes, turning machines, rotary moulding cutters, etc.—was being taught to five apprentices, all former carpenters prevented by injuries to their arms from taking up their old work.

Hand carpentry and cabinet-making was being taught to eighteen apprentices from all sorts of former occupations. Among them were boatmen, truckmen, butchers and agricultural workers, the majority of whom had an injured leg. They were making doors, windows, desks, boxes, cupboards and other interior fittings. Two men unable to mount ladders were learning to make carpenter's tools.

In the section for makers of patterns for casters were three men who had been moulders in a foundry and who were no longer able to lift the heavy frames. Two had an ankylosis of the elbow and shoulder respectively, the third a crippled foot.

In the section for toys and knick-knacks were ten men who had been cartmen, farm hands, bricklayers, miners, and weavers.

In the wood-carving section a wood-carver by trade was overcoming the handicap of three paralyzed fingers; a cabinet-maker with a badly crippled foot was learning the trade.

A miner, a farm worker, and a factory hand, all injured in the leg, were learning to make wooden shoes.

Wood polishing is considered a good trade for men who have completely lost the use of one arm or who have had an arm amputated. Apprenticeship is rapid and easy, and the only secret of the trade is in the mixture of ingredients. Twenty-four men with arm injuries or amputations were in this section. It is expected that after the war they can be placed in furniture factories, piano factories, and factories for automobile bodies. Pyrography and brass and leather repoussé work are taught with polishing.

The section for mechanics is extremely popular with the *mutilés*. Among forty-five apprentices there were former moulders, laborers, plasterers, chauffeurs, founders, forge workers, glass-blowers and weavers. Their injuries were partial paralysis of a hand, paralysis of the radial nerve, ankylosis of an elbow, and various leg injuries. Forty men had finished their apprenticeship and secured positions outside in which they were earning from five to eight francs a day.

Oxy-acetylene welding is considered within the powers of men who have had a leg amputated and even of men with a badly crippled arm if they have some use of the hand. Former iron-workers with a sufficiently developed intelligence to be able to acquire the knowledge of physics and chemistry necessary in the trade are advised to take up this apprenticeship.

Fifty pupils were taking the course for chauffeurs and automobile mechanics. They were of all trades and had various lesser injuries of the arms and legs.

The section for plumbers and zinc-workers contained four pupils who were working on the installation of a water system for the school and learning to manufacture kitchen utensils of all sorts.

The section for clock-makers contained four pupils.

The electricians' class had sixteen pupils and was growing rapidly. Apprentices were required to have agility for climbing ladders and stringing wires, and a certain amount of intellectual training. Men with no use of a forearm, with an ankylosed elbow or shoulder, and with paralysis of a hand were taking up the work. A former electrician who had had his left arm disarticulated at the shoulder was studying electrical theory and hoped to obtain a position as a foreman.

The shoemaking class here, as in French schools, was the largest of all the manual trades. It contained 114 pupils. There were men of practically all occupations and with all kind of leg injuries, even amputations. One man had had both legs amputated. The course is divided into repair work and the making of new shoes. Some men who intend to set up a shop in the city specialize in repair work, but the majority wish

⁹ *Ibid.*, pp. 124-134.

¹⁰ *Ibid.*, pp. 94-124.

to be able to make shoes and boots to measure. Apprentices entirely new to the trade have learned to assemble and finish a pair of army shoes in five and a half months. Orthopedic shoes for pupils in the school are made in this shop; other appliances are made by the saddlers and mechanics.

In the saddlers' shop were thirty apprentices, the majority with injured legs but some with ankylosis of the shoulder or elbow or partial loss of use of one hand. A six months' apprenticeship enables a man to earn a living in it. As a side-line all saddlers are taught to make fly nets for horses.

Tailoring attracts many men with leg injuries and some with injuries to their arms which prevent them from doing heavy work. The thumb and index finger of the injured arm must be able to hold the cloth. Men with a leg amputated use a small electric motor to run the sewing-machine. Fifty-two pupils were in this section.

The furriers were fewer in number, partly because of a lack of raw materials and partly because few men have a taste for the trade. Among the five apprentices were a miner, two carpenters, and an agricultural laborer. The same disabilities are compatible with this trade as with tailoring.

The upholstery class was only in its infancy. A few apprentices were at work repairing the school mattresses and were in hopes of obtaining some pieces of furniture which they could upholster.

In the basketry class forty-six apprentices were learning to make coarse and fine baskets and willow furniture. In addition to the regular apprentices, men in the horticultural class were learning basketry on rainy days. The majority of those who expected to make a living from basketry had leg injuries. Men with certain functional injuries of the hands had their condition greatly improved by the work. The average length of apprenticeship is from six to seven months.

Typesetting, by hand and by means of the linotype, and press work were being taught in the printing shop to twenty-one men, variously afflicted with paralysis of the hand, inability to open the fingers, and ankylosis of the elbow and

knee. Six of the linotypists after less than a year's work were fitted for positions in large printing establishments. They were capable of deciphering manuscripts and setting them correctly; their knowledge of grammar and spelling was entirely adequate for good work, although their previous education had been of the most rudimentary sort. They had moreover a perfect understanding of the linotype machine and could take it apart and set it up as well as any mechanic. Pupils became competent pressmen after an apprenticeship of six months.

The engraving and lithography section had seven pupils. Their former occupations ranged from bookbinding to truck gardening.

The bookbinding contained seven men, each with a badly crippled hand. One-armed men had been directed to this trade, but they have become discouraged and turned to wood polishing and the painting which imitates grained wood and marbles. Four months is long enough to learn ordinary binding, but a much longer time is necessary for artistic binding.

Photogravure has been taken up successfully by one-armed men and by men with no use of one hand. The usefulness of the shop is, however, limited by lack of orders.

In the photography studio were eight pupils who had partially lost the use of one hand. They were at work on retouching after having learned how to prepare and develop plates. Since photography hardly affords a living to a man in a small village, the school intends to combine this trade with some other such as sign-painting.

Five men were learning to operate moving-picture machines.

Among the twelve pupils of the hair-dressing class were former hair-dressers learning to make wigs and hair pieces, and men learning to be barbers. Men with leg amputations, with three fingers of one hand amputated, and with ankylosed elbows were in this class.

Brushmaking, except the manufacture of the wooden parts of brushes, is reserved for blind men.

There are several classes of industrial design or draughting. One prepares men to be simple draughtsmen and estimators; a second teaches applied design to former cabinet-makers and

forge-workers with a talent for creative work; a third teaches draughting for machinery, not only to former machinists, but also to telegraphers, stone-cutters, boatmen, and even agriculturists. Almost all the draughtsmen had lost part of a hand or had an ankylosed shoulder or elbow.

Men in the building trades—carpenters, roofers, and masons—who have no longer the strength for their old work are directed toward a class which takes up the study of mathematics, topography, the elements of physics and mechanics, building materials, building laws and hygiene—in brief, of all subjects which prepare men to be foremen or superintendents of building construction. A higher class which includes surveying and draughting prepares men for the examination for the position of building inspector in the department of public works.

In the sculpture and modeling class the ten pupils were former plasterers, marble-cutters, or stone-carvers. Since they were engaged in a connected trade, they were making rapid progress.

Different branches of painting are taught in a number of classes, in many cases to one-armed men. One class learns to imitate grained wood and marbles; another takes up sign-painting; and a third, painting on china and porcelain. Pupils are required to pass through these three classes in order to be armed against the slack season. Decorative painting and painting on glass are also taught.

In the great bakery built to supply bread to the institution six pupils, among whom three had lost a leg, were learning to be bakers, although this is in the main a standing trade. In the connection with the supply of meat, men were learning to be butchers and sausage-makers.

Former agriculturists whose injuries have incapacitated them for the heavy work of a farm are taught a trade at Port-Villez if they express their desire to learn one. If not, they receive training in raising animals or poultry, in dairying, truck gardening, fruit and tree culture, or flower raising. Fields adjoining the school property and two small farms in the vicinity have been rented for the purpose of providing this instruction. Experienced farmers no longer fit for active service in the army have charge of

the work. Among ninety men in the sections for poultry raising, tree and fruit culture, and truck gardening, nine had lost an arm, one a leg, four had a crippled leg, one a serious abdominal wound, one had been trepanned, and twenty had a stiffened or paralyzed arm.¹¹

HOW A TRADE IS CHOSEN

When men arrive at Port-Villez, they undergo a thorough medical examination, which determines what kind of physiotherapeutic treatment will benefit them. They are next examined as to their previous general schooling and their mental qualifications. This is done not only for the purpose of grouping them in classes for further instruction, but also to help in directing them toward a suitable trade. Certain occupations are barred to men without a fairly good general education or a quick intelligence. A third examination is conducted by the technical director, Captain Haccour, an educator of unusual understanding and sympathy, with a gift for drawing out a man's real self and with a contagious enthusiasm. Captain Haccour accompanies the new men on an informal tour of the workshops, lets them talk with the men at work in the various trades, and tries to discover their latent aptitudes and tastes.

Each man is then brought separately before a committee consisting of the examining physician, the academic director, and the technical director. The members of the committee compare their individual notes as to the man's capacities, consult with him as to his inclinations, and finally decide that he shall make a trial of apprenticeship in a certain trade. If after a week it appears that a man has been misplaced, his case is reconsidered and he is directed toward another kind of work.¹²

DEPARTURE FROM THE SCHOOL

With regard to men who on the completion of their readaptation to work wish to leave the institution and to earn their living outside, the practice of the school during the first two years of its existence was to allow them a leave of absence from the army without pay if they fulfilled three conditions. They must (1) be per-

¹¹ *Ibid.*, pp. 149-164.

¹² *Ibid.*, pp. 40-43.

manently incapacitated for military service; (2) have been readapted to their former trade, and (3) have in prospect work sufficiently remunerative to permit them to live in complete independence of public or private charity. A committee composed of the general staff of the school examined candidates for the first two requirements and verified the third by correspondence with the mayor of the commune in which the soldier intended to establish himself. After men left, they were expected to send every month to the committee a paper signed by the same mayor certifying that they were still in the locality.¹³

By the law of April 5, 1917, soldiers below the rank of officer, permanently incapacitated for military service, can obtain their discharge from the army as soon as their departure from an institution of functional or vocational re-education will not injure their own interests. After their discharge they receive instead of a pension an annual allowance proportioned to the degree of their disability, provided that their disability has reduced their capacity for work at least ten per cent. and that it will probably continue for at least one year. If the disability is considered permanent, the allowance will be granted until a new pension law is passed; if it is considered temporary, the allowance will be granted for one year, at the end of which time it can be renewed for the same amount, reduced, or increased. A committee appointed by the Minister of the Interior is charged with deciding whether the interests of a *mutilé* will be better served by his retention in an institution or by his discharge. For a common soldier the annual allowance for a ten per cent. disability is 120 francs; for a sixty per cent. disability, 720 francs; and for 100 per cent. disability, 1,200 francs.¹⁴

FINANCES

Since the entire cost of the school is borne by the Belgian government, every effort has been made to reduce the charges of construction and

equipment and to manage the school in the most economical way. The portable barracks which are used as dormitories and shops will be used afterwards in the devastated regions. The permanent structures have been built out of materials furnished by the owner of the property. Heating has cost only the labor required for cutting out the woods on the place. The cost of food is reduced to a minimum by having the vegetables raised by the agriculturists, the bread baked by the bakers, and the animals killed and cut up by the butchers. Tools and machinery have cost between 180,000 and 200,000 francs, but it is expected that after the war the government can resell all the equipment to fit out factories pillaged by the enemy.

The government allots to the school for the maintenance of the men one franc ninety-seven centimes per man per day, of which forty-three centimes goes to the soldier as his pay. This is the regular cost of maintenance of a Belgian soldier, whether he is fighting at the front or attending a re-educational school. No pensions or allowances are paid to the inmates of Port-Villel, but men in the shops receive wages of from fifty centimes to two francs a day, which are paid out of the proceeds of articles made in the shops. These proceeds also largely defray the general expenses of production.¹⁵

THE SCHOOL AT SAINTE-ADRESSE

The *Dépôt des Invalides* at Sainte-Adresse, near Havre, as has been said, was founded by M. Schollaert, the president of the Belgian House of Representatives. Like many of the French schools organized by private persons, it receives financial support from the government, but the control of its policy remains in the hands of M. Schollaert. The school was organized in the early days of the war when Belgian war cripples were wandering through the country asking for charity. Two of them knocked at the door of M. Schollaert, who was so shocked by their condition that he asked leave of the Minister of War to provide a home and medical care for them and similar destitute men. The home was rapidly filled; an organization was formed; and arrange-

¹³ De Paeuw, Léon, *La rééducation professionnelle des grands blessés de guerre et l'Institut Militaire belge de rééducation professionnelle de Port-Villel-les-Vernon* (Eure). Port-Villel, 1916, p. 43.

¹⁴ *Revue Interalliée pour l'étude des questions intéressant les mutilés de la guerre*. Paris, 1918, I, 86-92.

¹⁵ De Paeuw, Léon, *La rééducation professionnelle des soldats mutilés et estropiés*. Paris, 1917, pp. 182-190.

ments were made for providing both functional and vocational re-education.

Workshops for the latter were started on an extremely modest scale, wherever a place could be found for them in the vicinity of the manor-house which housed the patients. The brush-makers were installed in a stable; the turners in a kitchen; the carpenters in a hired shed; and the shoemakers in the parlor of a villa. Equipment was of the most elementary sort, and instruction was given by philanthropic artisans of Havre. Later, as the work grew in importance, all the shops and dormitories were gathered together in a cantonment in portable wooden barracks. At the present time the school teaches the trades of carpentry, toy-making, brush-making, wood-turning and pattern-making, sabot-making, cooperage, mechanics, metal-turning, electrical work, plumbing, upholstering, shoemaking, tailoring, paper-binding, printing, making of plaster casts, manufacture of orthopedic appliances and artificial limbs, and the manufacture of envelopes.

The organization of the school is practically the same as at Port-Villez, with a medical department, an academic department, and a technical department. Nominally the physician-in-chief is the director of the school, but actually M. Schollaert controls its activities and program. As at Port-Villez all pupils must study school subjects in addition to the work they do in the shops.

Since December, 1914, through agreement with the Minister of War, the *Dépt* admits all disabled or invalided soldiers sent to it by the army. It receives from the government two francs fifty centimes a day for each man, out of which it pays twenty-five centimes to the man. The quartermaster furnishes clothing, and the Medical corps beds and bedding. Men of the oldest classes unfit for further active service and nurses and stretcher-bearers have been detached from the army to serve as instructors and to maintain

discipline. During the time that inmates of the home are classed as apprentices, they receive wages of from fifty centimes to one franc a day, but later when they have acquired the skill of normal workmen, they receive an average of two francs fifty centimes a day, or sixty francs a month. Ten francs of this is given to them for pocket money and the rest deposited in their savings account. Each workman possesses a complete set of tools, which he pays for gradually.

At the end of 1916, 1,699 men were present in the school.¹⁶

THE 'HOME UNIVERSITY' OF PARIS

The 'home university' of Paris completes the system of vocational instruction organized by the Belgian government for its disabled soldiers. When the school of clerks was at Mortain, it offered opportunities for higher education to young men whose studies had been interrupted by the mobilization summons, but after the school was moved to Port-Villez, the Minister of War thought it advisable to discontinue these courses and in their stead to provide opportunities for study in Paris. To this end he organized in Paris what is called a 'home university', an institution where disabled soldiers are boarded and lodged at the expense of the government while they pursue their studies in the great Paris schools. At the end of November, 1916, six young war cripples were in the 'home university' studying law; two, medicine; one, natural sciences; one was enrolled with the faculty of philosophy and studying to become a higher teacher; three were in a commercial college; four, in an electrical college; two were in the Lycée Saint-Louis, and one was in a catholic college. Their books and instruments are furnished them by the Ministry of Arts and Sciences.¹⁷

¹⁶ *Ibid*, pp. 190-200.

¹⁷ *Ibid*, pp. 178-182.

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**Publications of the
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Opportunities for the Employment of Disabled Men

**Preliminary Survey of the Piano, Leather, Rubber, Paper Goods,
Shoe, Sheet Metal Goods, Candy, Drug and Chemical,
Cigar, Silk, Celluloid, Optical Goods, and
Motion Picture Industries**

Prepared by the Department of Industrial Survey of the
Red Cross Institute for Crippled and Disabled Men

Under the Direction of
Helen E. Redding



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Opportunities for the Employment of Disabled Men

These preliminary reports on opportunities for the employment of disabled men in various industries are not presented as exhaustive surveys of the trades. The material was prepared primarily for the use of the employment bureau of the Red Cross Institute and it has been thought well to publish it at this time for the information of other organizations concerned in the placement or training of the physically handicapped.

The purpose of making an industrial survey in connection with the re-education and rehabilitation of the cripple is really five-fold.

In the first place a survey of a particular industry enables the assembly of information as to the desirability of establishing classes for the training of cripples in that industry.

In the second place, it is only by a careful survey of any industry that adequate knowledge of possibilities of employing cripples in that industry can be obtained. It is obvious that such knowledge is essential to prompt and efficient placement of the crippled men.

The third purpose of the industrial survey is to obtain a mailing list, consisting of the names of firms which are both able and willing to employ cripples. Such a list will be of permanent value for the employment bureau, as these firms can be circularized at any time for any particular needs.

The fourth aim of an industrial survey is to educate the employer to the point where he is willing to give the cripple a fair chance and to regard the placement of the handicapped, not as an appeal to charity or patriotism, but as a sound economic proposition.

The fifth and last object of the industrial survey is to find definite jobs for the men who apply for work at the employment bureau day by day. This is one of the most interesting phases of the work and will eventually be the most valuable.

The industrial survey should prove the chief source of jobs as the bureau grows.

The method pursued in making the industrial survey has been to visit first the national and then the local trade associations. These associations have been asked to cooperate by sending the literature of the Red Cross Institute to all their members. Furthermore, the associations have been asked to permit speakers to appear before their meetings in order to explain the rehabilitation work and ask cooperation of the individual employer.

The next step has been to approach the trade journals and ask them to find space in their columns for articles on the training and employment of cripples. The response to this has been very generous and we have obtained widespread publicity within the industries.

Twenty-three industries have been taken up one at a time. Investigators have been sent to all of the largest factories in each industry and full reports of the findings have been filed in the office of the employment bureau. The cooperation of the smaller factories has then been solicited either by letter or visit. Separate factories in other lines of industry have also been investigated for special reasons, and if these industries have appeared fertile fields for study, the whole industry is covered later.

This work has been done partly by paid workers and partly by volunteers who have been carefully trained and directed. There are now on our files 862 names representing firms in or near New York City which are willing to cooperate and which employ anywhere from 25 to 10,000 men.

The information acquired has been varied and valuable. The survey department now has on file full descriptions of many processes open to cripples. Thus far 1,203 kinds of jobs have been

found which are possible for leg cripples and 278 kinds of jobs for arm cripples.

Furthermore, a careful statement is made as to sanitary conditions, fire precautions, etc., in each factory, so that the employment bureau may have a full knowledge of all conditions which will react favorably or unfavorably on a cripple who might be placed in such factory. In total 542 factories have been investigated or visited since January 1, 1918.

It is difficult to state the results of the survey work, which is only just beginning. It is possible, however, to estimate some of the probable results.

In the first place, much definite information as to factory conditions has been acquired by our office. In the second place, much information as to the desirability and possibility of employing cripples has been given to the employers.

One of the most interesting results of the work of the survey has been the change in the attitude of the employer. This is due, of course, in large part to the educational campaign to create an enlightened and constructive public opinion regarding the cripple; but it has been contributed to by the intensive work which the survey department has done through the trade associations.

Six months ago it was necessary to talk only of the war cripple; the employer who would listen to the problem of the industrial cripple was very rare. Today it is the exception to find an employer who declines to receive the industrial cripple—not only as a preliminary step to the employment of the war cripple, but also as an economic factor in the labor problem of today.

Perhaps the most definite result of the survey is the specific knowledge of jobs appropriate for cripples of varied types. The other obvious result of the industrial survey has been the actual jobs found for the industrial cripples who are being placed by the employment bureau every day. It is impossible at this time to estimate accurately how many of these men have been placed in jobs discovered by the survey. As time passes, however, this will prove the most definite practical result of the work of the survey department.

Preliminary statements on some of the industries already surveyed are given herewith.

THE PIANO INDUSTRY

The first piano factories visited were small ones. In every case, the employer was interested and eager to cooperate, but there were not many openings. In small factories each man must do several different kinds of work, and it almost always happens that at least one of the processes which he must do is heavy or, in some way, impossible for cripples.

In the larger factories visited there was a very different situation. Each man worked on one process; in fact, there were often several men working all the time at one process. This means that it would be possible to employ two or three cripples at the same process by using an able-bodied man, who could be an unskilled worker, to carry the material back and forth to these men. This matter of the material is a problem in the placement of cripples in the piano industry. A man might be able to work at the air-brush with one arm, but he could not lift the big piece of wood on to the rack or remove it when varnished.

The Manufacturers' Association says that the piano manufacturers in England have been able to employ a large number of cripples. It is true, also, that cripples have been placed in the piano industry in New York, and the reports from them show that they found the work suitable. The men placed were not skilled men, nor were they of the best type of workmen. Their wages were, therefore, low. All the employers agree, however, that it would be possible to employ men in the more highly paid work, if they could get the right kind of men.

PROCESSES

The following are the processes which we have found possible for crippled men. In no case is the process listed unless the employer agreed that the work could be done. Not all of the machinery at present is possible for cripples, but there is much of it which could be adjusted, and all employers are eager and willing to make those adjustments. For example, air-brush work is very possible for cripples with the exception of the act of filling the can. By arranging some sort of an automatic stop-cock which can be worked with the foot, an employer can make

this act easy and simple. Similar changes may be made in various other machines. Investigators have visited various factories—those which make upright pianos, grand pianos, piano players, and phonographs. Many kinds of work are common to all of these factories; for example, cabinet-work, carpentry work, glueing, polishing and varnishing, screwing, making hammers, and assembling.

1. Air-brush varnishing. Men stand for this work, but it can be done with one arm. In one factory one of the men hurt his arm and the superintendent arranged a mechanical device so that the man could fill his can with one hand. The worker holds a can of varnish with an automatic spray in it, stands in front of a big case, and passes this little spraying machine over the surface. The odor of the varnish is strong and the work is dirty, but it is not heavy and it could be done by a one-armed or one-legged man. Wages, \$15 to \$20 a week.

2. Painting and filling. Men stand in front of a table on which are placed the pieces of piano case. This material could be handed to them by a boy and taken away again. The work is not hard. It is certainly possible for a one-legged man. A superintendent in one factory said that he believed it to be possible also for a one-armed man. Wages, \$14 a week.

3. Rubbing. These men hold a pad in one hand and rub with the other, but the pad could be fastened to some part of the body. The work is, therefore, possible for a one-armed man. It might be possible for a one-legged man, but would be difficult since he must stoop at times. Wages, \$24 a week.

4. Doctoring. This requires two hands, but it could be done by a leg cripple. It is skilled work, consisting of adjusting the parts of the piano.

5. Side gluing. This requires two hands, but could be done by a leg cripple. Wages, \$15 a week.

6. Cabinet-making. This work includes all kinds of cabinet-work, both machine work and hand work. A one-legged man could do it, if he were able to stand, but he must have two arms. It is contract work. Wages, \$20 to \$22 a week.

7. Finishing. This requires three years' training. It is customary for men to be promoted to this work rather than for new skilled workmen to

be taken on. It is really fine polishing work and would require two arms, but it could be done by a one-legged man, as he might be seated most of the time. Wages, \$25 up; learners begin at \$10.

8. Tuning. This requires skilled men who must have two hands. It is such a good trade for the blind that we do not emphasize it for cripples, but it could be done by a one-legged man. Wages, \$20 up.

9. Regulating. In one factory they said they would take a learner, if he were promising, at \$14 a week. The work could be done by a one-legged man. It consists in regulating the action of the piano. Usual wages, \$30 a week.

10. Fine polishing. This could be done by a one-armed man. Wages, \$20 a week and up.

11. Installation. In this department, the action is put into the piano. This requires two arms, but it could be done by a one-legged man. Wages, \$20 a week and up.

12. Making the hammers. Practically all of this work would require two arms, but could be done by a one-legged man. The hammers are made of felt, which comes into the department in sheets. It is cut up, put on a rack, and then shaped by a sharp knife. This is skilled work and requires two hands. The pieces so shaped are then put in presses. This might be done by a one-armed man, but as the same man would have to do other work, it would not be an available position. Learners would be taken at \$12 a week. Usual wages, \$24 a week.

13. Cutting hammers. Hammers are made in one long piece and cut up like a row of chops in a butcher shop. This is done by a machine which could be managed by a one-armed man. The work is done seated and is suitable, therefore, for a one-legged man.

14. Boring hammers. This is done by a little drill machine, which works horizontally. It could be guarded. The hammer is placed on a flat table and held in place with one hand while the machine bores a hold in it. This could be done by either a one-armed or a one-legged man. Wages, \$15 a week.

15. Wiring Hammers. This work, which is done seated, consists of putting little pieces of wire made like double-headed tacks through the hammers. Wages, \$12 a week.

16. Making cases. There is some cabinet-work here, which could be done by arm cripples or leg cripples. Wages, \$16 a week.

17. Sanding machines. There are several kinds of sanding machines, consisting usually of a flat surface of metal over which the material to be sanded is passed. The work is done standing but it is not heavy, and, in some of the departments where the pieces are not too large, it could be done by a one-armed man. Wages, \$15 to \$18.

18. Gluing. There are various kinds of gluing to be done in the factory, and practically all of it could be done by a one-armed man.

19. Stringing. This requires two hands, but it could be done by a one-legged man, as the worker might be seated part of the time. It is skilled work. The man has a board in front of him, and the wires are on reels over his head. He must know which wires to choose and just where to fasten them to the board.

The following positions were also open to cripples in some factories:

Porters. The work consists of regular porter's work. Wages, \$14 a week.

Sweepers. Wages, \$14 a week.

Elevator Men. Wages, \$14 a week.

Shipping Clerks. Employers need skilled men for this and would be glad to take one-armed men. Wages begin at \$21 a week and rise very quickly.

POSSIBILITIES FOR ONE-LEGGED MEN

Process	Weekly Wage	
	Minimum	Maximum
Air-brush varnishing	\$15	\$20
Painting and filling		14
Doctoring		
Gluing		15
Cabinet-work	20	22
Finishing	25	
Tuners	20	
Regulating		30
Installation		
Making hammers		24
Boring hammers		15
Cutting hammers		
Wiring hammers		12
Sanding machines	15	18
Stringing		
Shipping clerk	21	

POSSIBILITIES FOR ONE-ARMED MEN

Process	Weekly Wage	
	Minimum	Maximum
Air-brush varnishing	\$15	\$20
Painting and filling		14
Rubbing		24
Cabinet-making (some kinds)	20	22
Fine polishing		20
Cutting hammers		
Boring hammers		15
Sanding machines	15	18
Gluing		
Porter's work		14
Sweeper's work		14
Elevator man		14
Shipping clerk	21	

WORKING CONDITIONS

Union. The trade is not for the most part unionized.

Wages. The wages in this industry are not so high as in the shoe trade, for instance, but, on the other hand, there is not so much of the very cheap work. Most of the processes which were possible for cripples would average from \$18 to \$25 a week. Learners, of course, would have to begin with much less but probably a good workman could be so placed in this industry that, at the end of a few months, he would be earning from \$18 to \$20 a week, with a possibility of raising that to \$25. The outlook from the point of view of wages is good.

Fire precaution. The small factories do not make their own cases. They have them made out of New York. This restricts very much the field for cripples because the carpentry and cabinet-work offer openings in the larger factories. This means also that the fire safeguards, fire drills, etc., are not so good in the small factories. The very presence of the inflammable raw material in the large factories causes unusual precautions.

Safety devices. The owners and managers of the large factories without exception are interested in all problems of safety devices. Many of the factories have suggestion boxes, with prizes offered to men who make the best suggestions for safety. They also have safety committees and

are very ready to adopt any suggestions from outsiders for the safety of their workers. This, of course, is a great asset for the employment of cripples.

Nationalities. In some of the factories there were special nationalities in some one department, as, for instance, Italians. This would have to be considered in placing the men, but there is such a variety of workers in the different factories and different departments that it need not prove an obstacle.

ADVANTAGES FOR CRIPPLES

1. Trade not seasonal.
2. Not dangerous.
3. Good working conditions, ventilation, etc.
4. Machinery not complicated.
5. Learners can be taken in the factories.
6. About one-third of the work could be done by either arm or leg cripples with slight adjustment.

DISADVANTAGES FOR CRIPPLES

1. Some of the work is heavy.
2. Small factories are impossible because each man must do such varied work.

THE LEATHER INDUSTRY

The leather industry is a good industry for cripples. All the employers visited were willing to take cripples and thought that a man should be able to learn the trade quickly in the factory. They were willing to make adjustments in order to employ cripples efficiently. Much of the work is possible for cripples, since about fifty per cent. of the processes are done seated, but there are few processes that can be done by one-armed men.

The industry is divided into several different lines—trunks, suitcases, and bags; pocketbooks, handbags, and small leather novelties; belts and straps; and men's belts only. It is impossible to give the minimum and maximum wages for each operation as it varies as the men become more proficient, but the lowest pay for any job is \$9 per week and the highest the investigator found was \$30.

PROCESSES

Trunks

1. **Lining trays.** The tray comes to the man who does the lining in a rough state. His work is to cut out the lining material and to paste it to the wood. The tray then is taken to another bench where it receives the finishing touches. At this bench men finish up the corners where the lining comes together with a piece of tape and also cover the edges of the tray with tape. On the outside of the trunk canvas is used in a great many cases and also on the outside of the trays. This is also pasted on in the same way as the lining. Some of the trays have strips of wood for reinforcement, which are painted in another department.

2. **Cutting.** Cutting linings and fiber for making trays is another operation. This is done either with a knife or scissors.

3. **Riveting.** In this operation hinges are riveted on steel bands. The hinge is fitted to the steel band and a hole is punched with a machine operated with a foot pedal. After the rivets are inserted in the holes, they are driven up with a rivet hammer.

4. **Nailing.** On all trunks, there are strips of wood nailed to the body of the trunk to protect it from damage in shipment.

5. **Pasting.** In the suitcase department, the leather is pasted to the inside lining and the frames of the case. The cloth is pasted on the inside of the suitcases before the leather is put on the outside.

6. **Mounting locks.** This is done by boring holes in the side of the case and attaching the lock to the case with rivets.

All the above occupations could be done by a man with one leg.

Pocketbooks and Novelties

1. **Coloring.** The leather comes to the factory all of one color—a light brown—and is colored in the factory with the different colors in which the goods are to be made up.

2. **Making frames.** There is one department where are made the frames to which the fasteners and the leather are attached, and another where these frames are assembled and the fasteners put on which hold the backs together.

3. Pasting and stitching. The lining is pasted to the leather of the outside cover before the cover is stitched on to the iron frames.

The only operation a one-armed man could do in a pocketbook factory would be coloring of the leather. The balance of the work could be done by a leg cripple, as the work is light and not hard to do.

Belts and Straps

1. Cutting and pasting. The leather comes to the factory in large hides and is cut up into the different style belts to be manufactured. Belts which have fancy work on them are put in a stamping machine and stamped. Quite a number of belts are made of two pieces of leather and, in these cases, the under part is pasted to the top.

2. Attaching buckles. In one occupation the buckle is fastened to the strap, and in another the loop for the end of the belt is sewed on.

3. Punching. Holes are punched in the belts by a machine worked with a foot pedal. After these holes are punched, the belt is taken to another department and the holes are dyed the color of the belt.

4. Turning. The final process is to run the leather strap through a machine which turns over the two edges of the belt, in order that the lining or the rough edge may be sewed.

POSSIBILITIES FOR ONE-LEGGED MEN

Trunks and Bags

Lining trays	Punching holes in fiber
Finishing trays	Nailing pieces on brass
Putting canvas on wood	Stitching straps
Painting trays	Fastening on leather covers
Cutting lining and fiber	Fastening cloth on inside of cases
Riveting hinges on steel bands	Mounting locks

POCKETBOOKS AND NOVELTIES

Coloring leather	Pasting
Making frames	Fastening on buckles
Pasting on lining to leather	Punching holes
Setting together of frames	Putting on loops
Stitching	Dyeing holes
Belts and straps	Operating a turning-in machine
Cutting	
Stamping	

POSSIBILITIES FOR ONE-ARMED MEN

Coloring of leather	Stamping
Punching holes	Dyeing holes

WORKING CONDITIONS

Union. The trade is strongly non-union.

Wages. Wages vary, the beginners getting from \$9 to \$12 per week. Skilled workers make as high as \$30 per week at piece work. The trade is seasonal.

Hours. The hours are long. Most of the factories work from eight in the morning to six at night, with one-half hour at noon.

Physical conditions. The factories occupy from one to four floors of large buildings. Conditions of light, air, and noise are good in most places. Only two poorly ventilated factories were found. Factories are clean as a rule.

Risks. Fire risk is not great. Little machinery is used and that is not dangerous.

Nationalities. The investigator found all races, with Jewish predominating. None was barred. Forty to fifty per cent. of the work is done by women.

THE RUBBER INDUSTRY

The rubber industry affords many opportunities for disabled men. All the employers visited stated that they would be glad to cooperate in placing men and that they would use and teach handicapped men in their factories. There are not so many openings for one-armed as for one-legged men. Men wearing artificial limbs find the heat in some of the departments very annoying, and men with lung weakness are sometimes troubled by the starch that is used on the rubber.

There are several divisions of the rubber industry: the manufacture of mechanical rubber, the manufacture of large articles such as automobile tires, rubber boots, etc., the manufacture of rain coats, and the manufacture of smaller rubber articles such as bathing caps, hot water bottles, rubber tubing, balloons, etc. Nearly all the factories for large articles are in the West, few in New York, but there are in New York a great many factories for smaller articles.

Raincoats

PROCESSES

1. Operating power sewing-machine. This is a seated job possible for one-legged men. It demands very skilled workers. Wages, \$25 to \$60. Piece work.

2. Operating riveting machine. This is also a seated job possible for one-legged men. It consists in riveting the metal fasteners onto raincoats. A fastener is placed on the cloth in the proper place and then placed under a trip hammer or riveting machine. The work is not skilled. Wages, \$9 to \$20.

3. Operating power cutter. This is a standing job but possible for one-legged men. It is skilled work. The operator places the pattern of the raincoat on a pile of material, and a power cutting machine, with very sharp blades, cuts through the many thicknesses, cutting out some fifty to one hundred coats at once. Wages, \$20 to \$60. Piece work.

4. Seam cementing. After the seams in raincoats have been sewed together, the edges are turned down and made flat with cement. It is not skilled work. A standing job possible for one-legged men. Wages, \$9 to \$20 a week.

5. Operating spreading machine. The cloth is rubberized by this machine, which is a roller press. The material is put into the machine on a huge roll or spool, and runs over rollers covered with rubber preparation. As the cloth moves over these rollers, the rubber is spread onto it. After it is covered with the rubber, it passes over heated pipes to the other end of the machine where it is made into huge bolts. A standing job possible for one-legged men.

6. Operating milling machine. This machine grinds the rubber pieces, which are the raw material, into small bits, which are then carried on a band to the other end of the machine, where they go through a pair of rollers and are mashed into sheets. A standing job possible for one-legged men.

7. Mixing rubber. The rubber sheets are put through a process of melting and mixed with certain secret ingredients to make them the proper consistency to spread on the rollers that spread the rubber on the cloth. A standing job possible for one-legged men. Skilled work. Wages, \$20 up.

Mechanical Rubber

1. Molding valve seats. The valve seats are molded out of hard rubber to fit all sizes of valves. A standing job possible for one-legged men. Skilled work. Wages, \$12 to \$35.

2. Making belting, matting, and hose. This is hard work for an able-bodied man as the articles weigh at least 300 pounds. Most of the work in mechanical rubber manufacturing is too heavy for cripples.

Miscellaneous Rubber Articles

1. Cutting biscuits. The first operation in the factory is to cut the biscuits, or huge chunks of raw rubber, into small pieces. These pieces are then heated and run through a presser which rolls them into corrugated sheets. Wages, \$12 up.

2. Washing. The material then goes through the washing machine where it is ground to a certain extent.

3. Operating milling machine. It is taken next to the milling machine where it is mixed with other ingredients and the pigments for different colors are put in. This machine mixes the rubber like dough. After it has been thoroughly mixed and kneaded it is put through the roller.

4. Operating roller. Here the rubber is rolled into long sheets about three feet six inches wide and run onto a sort of reel. As the rubber goes through the machine, there is a broad piece of goods which goes through at the same time and winds on the reel. This is to dry the rubber and to prevent it from sticking by having the cloth between the two layers.

These first operations are preparing for the manufacture of articles and could all be done by men who had lost a leg, provided the amputation was below the knee.

5. Molding. Steel molds in the shape of the different articles are covered with a soap suds preparation by means of a brush. Then a sheet of the rubber is placed on the molds and put into a hydraulic press. The press forces the rubber into different molds. All of this work could be done by a one-legged man.

6. Making tubing. In another department are made the rubber tubes. The rubber is in sheets, which are fed into the machine and forced

out by a hydraulic press through a nozzle which forms the tubing. All the man has to do is feed to the machine the rubber sheets, and as the tube comes out of the machine, to coil it in a large pan that revolves on an axle. This pan is filled with starch to keep the tubes from sticking together. This can all be done by a man with one hand. Wages, \$9 to \$20 a week.

7. Watching. In this department the rubber, after being manufactured into the different grades of material that are to be used in the different operations, is run through rolls and made into long sheets. The man watches the rubber as it goes through these rolls. He must have had some previous experience in this line of work to be able to do it, but there are one or two other men who help in this work who are unskilled. All of this work could be done by a man who had lost a leg.

8. Making rubber bands. In making rubber bands, the first process is to take the strips of rubber and mold them into tubes of the circumferences that the rubber bands are to be when completed. These tubes are fed into a machine with a number of knives, which cut the rubber off in strips crosswise of the tubes, thus making the rubber bands. The machine can be adjusted to make bands of different sizes. The work could be done by a man with one hand. While the man who showed us the work stood, it seemed possible for a one-legged man to do the work if he could be provided with a stool.

9. Drilling vems. The material technically called vems in the rubber business is similar to the fittings used in pipe and cast iron fittings; for example, there are T's and Y's and offset crosses. These are cast in solid form and are then taken to this department and bored out, making the different fittings.

10. Threading. In this process the tubes that are used on the different syringes are tapped out and threaded so that they will screw into the fitting on the ends of a tube in a hot-water bottle or fountain syringe. This work could be done by a man with one hand provided he used a work arm on his right arm. He must have a good left hand to do this work. Wages, \$9 to \$20.

11. Making rubber balls. In this department, the rubber is put into molds and compressed

into the form of a ball. After being taken out of the press, the balls go to another department, where they are vulcanized, and from the vulcanizing department, they are taken to a department where they have a hole drilled into them. It would take a man with two hands to do the work of molding the balls. The drilling could be done by a man with a work arm and one good arm.

12. Stripping. After being run through the press and onto a reel, as described before, the rubber is stripped from the cloth on which it was laid as it came through the machine. Three men are required to do this work. Two men standing at either side of the table throw pumice stone on the rubber as it comes off the cloth and brush it with a counter brush. A third man at the end of the table reels the rubber onto a spindle. The spindle with the rubber on it is then taken to another floor, where are made bathing caps, hot-water bottles, and other rubber appliances of this nature. All of the work in this department is now being done by women, except in one or two cases. A man cuts out the different goods to be manufactured.

13. Vulcanizing. After the hot water bottle or other article has been made, sulphur is poured into it, shaken around, and poured out, and sulphur powder is rubbed on to the outside. The article is then taken to a big tank heated by steam for vulcanizing. It is left in this tank for several hours and then taken to another department, where it is washed and made ready for sale.

POSSIBILITIES FOR ONE-LEGGED MEN

Power sewing machine operator (skilled)	Tubing
Riveting machine	Helping on calendars
Power cutter operator	Watching
Seam cementer	Rubber bands
Spreading machine operator	Drilling vems
Milling machine	Threading
Mixing rubber (skilled)	Rubber balls
Cutting biscuits	Stripping
Washing	Vulcanizing
Milling machine	Press molding
Roller	Mixing machine
Pleating caps	Cutter
	Molding

POSSIBILITIES FOR ONE-ARMED MEN

Tubing	Drilling vems
Rubber bands	Rubber balls
Stripping	

WORKING CONDITIONS

Union. Workers in the trade are not unionized with the exception of the sewers on rubber coats.

Wages. In most of the factories beginners receive \$9 to \$12 a week. The average wage for skilled work is \$30 to \$35. As the work is nearly all piece work, many men make much more.

Hours. The hours are long, averaging fifty-six a week.

Buildings. Factories are for the most part large and have plenty of light and air.

Nationalities. All nationalities are employed.

ADVANTAGES FOR CRIPPLES

1. Good ventilation and light.
2. Employers will take learners.
3. Wages are good.

DISADVANTAGES FOR CRIPPLES

1. Manufacture of mechanical rubber is too heavy work for cripples.
2. Hours are long.

THE PAPER GOODS INDUSTRY

There are no paper pulp mills in New York. One or two mills have pulp shipped to them and make the newspaper product. The trade as a whole is an undesirable one for cripples as the rolls of paper are very heavy, and the machines in many branches are high powered and dangerous. Often an able-bodied man is unable to do the work. Men suffering from shock or weakened in any way would find it impossible as it is often extremely noisy and in many operations heavy and dangerous. All the employers are willing to cooperate and take crippled men wherever possible, but most of them feel there are few opportunities for cripples.

PROCESSES

1. Rotary envelope machine operating. The paper is fed into the machine, gummed, and the

envelope completed. Seated work for one-legged men.

2. Envelope cutting. The paper is cut into the forms of the different envelopes on this machine. Seated work for one-legged men.

3. Paper folding (hand). This hand work is only done on special size envelopes as it does not pay to run the machines and have special dies cut to make these special envelopes. Seated work for one-legged men.

4. Imprinting machine operating. On this machine the name of the firm is imprinted in the envelope. Seated work for one-legged men.

5. Hand embossing machine operating. The man doing this work embosses the name instead of imprinting it on the envelope. Seated work for one-legged men.

6. Cutting bristol board. This work is done on a power cutter which cuts the paper into different sizes. Standing work for one-legged men.

7. Lathe operating. This work consists in operating a power lathe and could only be done by a man trained for that line of work. Standing work for one-legged men.

8. Corner cutting. The worker cuts the corners out of the boxes so that they will go together. Standing work for one-legged men.

9. Box staying. The worker puts wire stays or fasteners on either side of the corner of the box to hold the box together. Seated work for one-legged men.

10. Cutting and creasing. The worker cuts grooves in the cardboard, which is then folded along these grooves to form the box. Seated work for one-legged men.

11. Gumming and banding. The worker merely gums the bands that are put around envelopes in packages of twenty-five each. Seated work for one-legged men.

12. Black bordering. This work is all hand work and is done on envelopes and paper to make mourning stationery. Seated work for one-legged men.

13. Press feeding. The man feeds the paper to the press that prints the corner impression on the envelope. Standing work for one-legged men.

14. Eyeletting and disc machine operating. This work consists in perforating holes in tags

and inserting eyelets and discs to protect the holes. Standing work for one-legged men.

15. Rolling machine operating. Consists of making wall paper into rolls ready for the purchaser. Possible work for one or two leg amputation cases.

16. End lapping. This operation is in connection with the rolling machine; the end is folded in after the given number of yards are rolled on the bolt. Seated work for one or two leg amputation cases.

17. Tiering machine operating. The worker merely helps the man who makes the hand-printed wall paper. Standing work for one-legged men.

18. Feeding drying press. The work is to attend to the machine that folds and passes the paper over the dryer. Standing work for one-legged men.

19. Watching reel on the embossing machine. The operation consists in pulling the paper from the embossing machine a given distance before the next impression is made. Work for one-legged men.

20. Mounting signs, ads., etc. All the work is very heavy. No positions for either a leg or an arm cripple were found. Factory conditions are very good, but the work seems impossible, and machines are dangerous. Unskilled work is done by women.

**POSSIBILITIES FOR ONE-LEGGED MEN IF PROVIDED
WITH ARTIFICIAL LIMBS**

Envelope Factory

SKILLED

<i>Process</i>	<i>Weekly Wage</i>
Rotary envelope machine operating	\$12-\$18 up
Envelope cutting	12- 18 up
Cutting machine operating	12- 18 up
Paper folding (hand)	12- 18 up
Paper folder press operating	12- 18 up
Imprinting machine operating	12- 18 up
Hand embossing machine operating	12- 18 up
Cutting bristol board	12- 18 up
Lathe operating	12- 18 up

UNSKILLED

<i>Process</i>	<i>Weekly Wage</i>
Corner cutting	\$12 up
Box staying	12 up
Automatic envelope machine operating	12 up
Cutting and creasing	12 up
Gumming and banding	12 up
Hand folding	12 up
Blacking border	12 up
Packing in the boxes	12 up
Press feeding	12 up
Eyeletting and disc machine operating	12 up

PAPER BOXES

<i>Process</i>	<i>Weekly Wage</i>
Wrapping packages	\$12-\$14 up
Press feeding	12- 14 up
Stamping machine operating	12- 14 up
Hand work on boxes	12- 14 up
Slitting paper	12- 14 up

PAPER BAGS

<i>Process</i>	<i>Weekly Wage</i>
Packing	\$12 up
Roll press feeding	12 up

(Noise in both processes is deafening.)

WALL PAPER

<i>Process</i>	<i>Weekly Wage</i>
Rolling machine operating	\$12-\$14 up
End lapping	12- 14 up
Tiering machine operating	12- 14 up
Feeding drying press	12- 14 up
Watching reel on the embossing machine	12- 14 up

MANUFACTURING SAMPLE CARDS

<i>Process</i>	<i>Weekly Wage</i>
Power cutting machine operating	\$12-\$25
Bronzing machine operating	12- 25
Compositor of type (skilled)	20 up
Book binding	12- 25
Casing machine operating	12- 25
Wire stitcher machine operating	12- 25
Cutting samples (skilled)	18 up

PAPER PATTERNS

<i>Process</i>	<i>Weekly Wage</i>
Clerical workers	\$14 up

(Inexperienced men will not be taken. Most of work is done by women.)

CUTTING AND BOXING STATIONERY

<i>Process</i>	<i>Weekly Wage</i>
Wrapping packages	\$14-\$15
Envelope machine operating	12- 23
Press feeding	16- 18
Ruling machine operating	16- 18
Stamping machine operating	16- 18
Stock-keeping	16- 18
Tipping tablets	\$9
Wire stitching	9
Tipping on books	\$10-\$11
Stripping machine operating	10- 11
Staying machine operating	10- 11
Automatic box machine operating	10- 11
Gluings	12- 14
Hand work on boxes	\$15
Corner cutting	15
Scoring	15
Slitting paper	15

WORKING CONDITIONS

Union. The trade is not strongly unionized.

Wages. Generally the wages are good, ranging from \$10 or \$12 to \$25 a week for unskilled work; for skilled work in some of the branches from \$20 to \$40 a week.

Physical conditions. Generally good.

Nationalities. All nationalities are taken in the various factories.

ADVANTAGES FOR CRIPPLES

1. Some of the work is very skilled and pays very well.
2. Most of the factories are pleasant places to work.
3. The envelope factories have a number of operations possible for cripples.
4. All factories take learners.

DISADVANTAGES FOR CRIPPLES

1. The majority of the work is too heavy.
2. There is a great deal of machinery that is high powered and dangerous.

3. The unskilled work pays a very low wage.
4. Much of the light work is done by women.
5. Many of the factories are noisy.

THE SHOE INDUSTRY

As there are 300 different processes in the shoe industry the field for employment is unusually varied. The trade is not seasonal. Trade conditions are good at present and no decrease is expected after the war. Most of the work is done by machine, though the finer grade shoe demands some hand work. From 50 per cent. to 75 per cent. of the work is seated. About 50 per cent. of the employees are men.

Most employers are willing to take learners, and all agree that it would not be possible for a man to learn the shoe trade except by entering the factory. Most of the workers have gone up through the whole process. The fact that the men learn so much of the trade increases their interest in the work they are doing.

PROCESSES POSSIBLE FOR ONE-ARMED
MEN OR ONE-LEGGED MEN

1. Folding. The man sits at a table on which is placed the lining of a shoe. He folds the edges over with one hand and taps on them with a hammer. This hammer could be fastened into a work hand and he could make as much speed as a two-armed man. The folder never puts his hammer down, removing the finished piece with the hand which did the folding. Wages, \$18 to \$20 a week.

2. Leveling. The man stands in front of a large machine. He might possibly be seated but could not do the work so well. This machine has two parts, which work alternately so that he puts on first one shoe and then another. The shoe is put on a form with the sole up. The man then pushes a lever with his foot. This moves the shoe forward and two heavy rollers pass over the sole, leveling it. While this shoe is under the rollers, the other form comes toward the man, who then puts a shoe on it. This, in turn, passes under the rollers and the first shoe comes back to be removed. This machine

is somewhat dangerous because men who are not careful can get their hands caught under the rollers. One employer said that he would hesitate to employ a cripple here because of the chances, but, on the other hand, he asserted that a one-armed man was in no more danger of being injured here than a two-armed man, and the work could be done just as efficiently and just as quickly by a one-armed man as by a two-armed man. Wages, \$20 to \$25 a week.

3. Bottom filling. The man sits on a stool in front of a rack of shoes. He lifts down a shoe with his left hand, and places on the shank a little extra piece of leather and metal. He then fills his mouth with nails, takes a hammer in his right hand, and puts nails on the top and bottom of the little extra shank piece. This he does without moving the position of his left hand. He then puts down the hammer and takes up a broad spatula covered with filling material which looks like a mixture of ground cork and glue. He covers the bottom of the sole with this sticky substance and puts the spatula back in the pail. He then puts the shoe back on the rack with his left hand. The last motion was the only time he used his left hand, and this could have been done with the right hand. This means that an artificial work hand designed to hold a shoe would make it possible for a one-armed man to do the work as efficiently and quickly as a two-armed man. Wages, \$18 to \$20 a week.

4. Last Picking. This work takes brains and legs, but only one arm. The man takes cards which are given him in the various departments and goes to the storeroom, selects the lasts according to the numbers on the cards, puts these little wooden lasts on to a rack, and wheels them to the proper workmen. The racks are light and easily moved. This could, therefore, be done, of course, by a one-armed man. Wages, \$12 to \$18 a week.

5. Leather repairing. The man who has a good eye for color and some artistic ability can make more than \$20 a week at this work, and such men are so difficult to obtain that there is always a demand in the market for them. These men hold a shoe in the left hand, take

a brush in the right hand, dip the brush into a bottle of some kind of dressing and touch up the shoe. The left hand does not need to make any motion at all. Therefore, an artificial work hand, made the right shape to hold a shoe, would make it possible to do this work as efficiently and quickly with one arm as with two. Wages, \$12 to \$16 for patent leather; \$12 to \$20 for colored shoes.

6. Stock checking. This work is often done by girls but could, of course, be done by a one-armed man. Wages, \$10 to \$12 a week.

7. There are, of course, office positions,—stock clerks, etc.—open to one-armed men, but these would come under the general head of stock clerk and clerical work rather than under the head of shoes.

It is not possible to describe all the processes which are open to one-legged men. There are 300 processes in making a shoe, and usually about seventy-five per cent. of this work could be done by one-legged men. The most highly skilled and best paid workers would be the vamp stitchers, who get as much as \$40 a week; and cutters, who get as much as \$40 or even \$50 a week.

In regard to the work of cutting, all employers agree that it could be done by one-legged men because a high stool could be used, but employers disagree as to the possibility of employing a one-armed man in this. Some of the employers in the largest factories believe that one-armed men could be so used.

POSSIBILITIES FOR ONE-LEGGED MEN

Process	Weekly Wage	
	Minimum	Maximum
Coloring	\$10	\$12
Sewing machine operating	12	30
Bench work	10	12
Repairing leather (putting on dressing)	10	20
Pasting	10	12
Folding	18	20
Bottom filling	18	20
Lasting	15	20
Cutting	20	35
Designing	25	40

POSSIBILITIES FOR ONE-ARMED MEN

Process	Weekly Wage	
	Minimum	Maximum
Coloring the edges	\$10	\$12
Leather repairing	10	20
Pasting edges of uppers	10	12
Folding	18	20
Leveling	20	25
Bottom filling	18	20
Last picking	12	18
Packing	10	12
Cutting (skilled only)	20	35
Designing (skilled only)	25	40

WORKING CONDITIONS

Union. Most of the work in shoe factories is not unionized, though there are one or two local unions.

Wages. Wages in the shoe trade vary greatly. Unskilled labor brings from \$10 to \$12 a week, skilled labor from \$20 to \$45.

Hours. The hours are long, nine or ten a day.

Buildings. Most factories are four stories high. The work on the shoe begins on the top floor and, as the process is continued, the shoe is sent down until it is packed and shipped on the first floor.

Light and ventilation. These are usually good. In most factories the workmen sit on benches facing the windows and the center of the floor is occupied by light movable racks containing the shoes.

Fire. Fire risk is not great, as there is not much inflammable material used. The movable racks in the center of the floor, however, would be a menace in case of fire.

Safety. Most of the machinery is not dangerous. Some employers consider the compensation law a drawback; but most of them feel that the danger is so slight as to be a negligible factor in the employment of cripples.

Nationalities. All nationalities are employed in the shoe trade but the Italian predominates.

ADVANTAGES FOR CRIPPLES

1. The work is not dangerous.
2. About seventy-five per cent. of the work can be done seated.
3. The sanitary conditions are usually good.

4. Machinery can be adjusted for use by cripples.

5. There are so many different processes that it is possible to find many different places for cripples.

6. Learners are taken in all factories.

SHEET METAL GOODS

As a whole the metal industry is stable, and at present seems to be in a flourishing condition, due to the fact that the government requires a great quantity of metal goods. The only branch of the trade that is not doing well is the Lighting Fixture trade.

All the employers are willing to take crippled soldiers, but most of them seem to think that there are only a few processes at which a one-armed man could work. They admit, however, that a one-legged man could work at almost all processes. The employers seem to feel that most of the processes could be learned inside of six months.

Work in the metal trades would not be good for any one suffering from nervous strain as there is a great deal of noise. Even the bench work is not quiet, for there is usually heavy machinery near by. The trade would also be bad for anyone suffering from lung diseases or lung wounds as in the buffing, polishing, filing, etc., there is a great deal of powdered metal in the air.

PROCESSES

1. **Buffing.** Workman is obliged to stand and hold metal piece against large automatic wheel. The work is possible for a one-legged man if he can stand. Wages, \$12 minimum, \$18-\$25 maximum.

2. **Polishing.** Work is similar to buffing.

3. **Nickel plating.** Metal articles are strung on wires and hung on a metal bar in large vats of acid; an electric current is run through the metal bar. It is standing work but possible for a one-legged man.

4. **Making wire link bedsprings.** The wire, coiled on a spindle, passes through a machine which cuts it into short lengths, makes a hook at each end, and fastens the lengths together to form a long chain. These machines are auto-

matic. One man takes care of all the machines on the floor and keeps them in repair. A man who had lost a foot could do the work if he could stand all day. The links thus made are fastened into the riveted frame by hand. This work could be done by any one-legged man as it requires no lifting and little walking. It could not be done by one-armed men, as it necessitates using the fingers of both hands.

5. Making woven-wire springs. The long spirals of thin wire are woven together by a simple machine operated by one foot. For sanitary reasons these springs have fallen into disfavor, and fewer of them are made each month. In one factory visited only two men are employed on these machines for part of each day. The manager predicts that such springs will soon be unknown.

6. Power machine operating. In the manufacture of couch hammocks, the covers are sewed on power machines, furnishing work to all the operators possible to obtain during the busy season. The machines can be run by one-legged men. Speed is necessary as the work is piece work. About two months are required to learn.

7. Fastening eyelets in hammocks. Brass eyelets are inserted in the sides of hammocks, so that the cords may be strung through them. This is done by a simple machine operated by one foot. It could therefore be done by one-legged men, and possibly by one-armed men. However, two men working two hours each day can handle the output of the factory visited. The work is seasonal.

8. Riveting. Pieces are riveted together by hand with riveting hammer; holes are punched in with riveting stake. Standing work for one-legged men.

9. Pattern making. Consists of building patterns for metal castings. Each pattern is a full-sized model of the piece to be cast and is usually made of wood. The tools used are the same as those of woodworkers, and the work is similar to cabinet-making. Ability to read blue prints is an essential requirement. Standing work for one-legged men.

10. Metal spinning. This is very heavy work and should not be attempted by a man who is not strong. It consists of putting a flat metal

sheet on an automatic revolving disc and holding a long iron bevel against the edge so that the metal is gradually spun into a concave piece. Standing work for one-legged men.

11. Metal cutting. This is done by an automatic machine with large shears, somewhat similar to a power press. Standing work for one-legged men.

12. Automatic power press (cutting designs). A right-foot pedal brings down the press, which must be fed with both hands. Seated work for one-legged men.

13. Automatic power press wiring. Similar to above except that wires are put into curled edge. Seated work for one-legged men.

14. Japan varnishing. Consists of varnishing cans, boxes, etc. Seated work for one-armed man.

15. Torch soldering. Same as ordinary soldering except that torch is used. Seated work for one-armed man.

16. Cutting machine press. This is a foot power press which shears the tin. Standing work for one-legged men.

17. Wiping out cans. Consists of drying cans after they have been washed out. Standing work for one-armed man.

18. Eyeletting. Is done by an automatic machine which perforates holes in metal. Seated work for one-armed men.

19. Punching. Similar to eyeletting. Seated work for one-armed man.

20. The machine is a revolving disc upon which a piece of metal is placed. Cutting tool is held against the edge and bevels it. Seated work for one-legged men.

21. Auto-machine press cutting. Tin sheeting is shoved into the cutter. A right foot pedal is used to bring down the press which chops the metal into pieces. Seated work for one-legged men.

22. Wire is put through rolled edge of molds to reinforce them. Seated work for one-legged men (bench work).

23. Repairing molds. Bench work (seated) for one-legged men.

24. Casting molds. Consists of packing damp sand about a pattern in such manner that when pattern is withdrawn, a cavity called "the mold"

is left in the sand. This mold is then poured full of molten metal which forms the piece to be cast. The work is sometimes done by machines. Seated work for one-legged men.

25. Casting hinges. Similar to above process. Work for one-legged men.

26. Filing. The piece is held in one hand and the rough edges filed off with a hand file. Seated bench work for one-armed men with work arm.

27. Soldering. The piece is held with one hand and the solder applied with a long bar. Seated bench work for one-armed man with work arm.

28. Die-making. This work calls for a high degree of skill. A machinist must have special knowledge and skill in designing, shaping, and sharpening tools. It is very exact work and has to be measured up to the pattern. It consists of taking a piece of metal and cutting it down by means of various machines into given shape. Standing work for one-legged men.

29. Screw machine operating. In some screw machines the faces of the revolving tool-holding device called a turret hold tools of different kinds. In others the turret instead of being square or hexagonal is shaped like a drum. As each operation is completed, the drum, with the tools it carries, backs away from the piece, and with a slight turn brings the next tool into position. Usually the stock is fed to the machine in long bars or rods. Standing work for one-legged men.

30. Power press operating. A large press, which works with a foot pedal but is sometimes automatic, cuts the metal with its blades. Standing work for one-legged men.

31. Jig sawing. A metal saw like a hand tool saws the metal into small pieces. Seated work for one-legged men.

32. Assembling parts. Seated work for one-armed men.

33. Planing. The piece is firmly secured on a flat bed or table which moves backward and forward under a stationary tool. For light work on plane surfaces a shaper is used. The principle is the same except that the tool moves while the piece is stationary. Standing work for one-legged men.

34. Lathe machine operating. The piece to be turned is mounted on a revolving spindle

and the cutting tool automatically moves along the surface of the revolving piece. In a hand lathe the cutting tool is held against the piece by hand. Standing work for one-legged man.

35. Milling machine operating. The operating principle is the same as that of a circular saw. The machine is provided with one or more circular cutters having a number of teeth or cutting edges, each of which removes a chip of metal from the piece as the cutter revolves. It is provided with graduated dials which permit of accurate adjustment to less than one thousandth of an inch.

36. Forming tools. This work calls for a high degree of skill and practical knowledge of designing, shaping, and sharpening tools. Seated bench work for one-legged men.

37. Grinding machine operating. The work is performed by a grinding wheel of emery or corundum. Only a slight thickness of metal is removed, the piece being first reduced to the desired size on a lathe or milling machine and then finished by grinding. A shaft for example is turned in the lathe to within a thirty-second of an inch of its proper diameter, and then transferred to the grinder which brings it down to the exact size and leaves a perfectly smooth surface. Seated work for one-armed men.

38. Assembling. As its name implies, assembling consists in assembling various parts. Seated bench work for one-armed men.

POSSIBILITIES FOR ONE-LEGGED MEN

Machine press hemming	Grinding machine
Cutting tin (foot-power press)	Assembling
Buffing	Stamping
Polishing	Screw machine
Silver plating	Power Press
Die-making	Jig sawing
Threading (beveling edge)	Pattern making
Welding machine	Metal spinning
Press work	Metal cutting
Wiring (bench work)	Engine lathe
Repairing molds	Engine milling
Casting molds	Drop press
Casting hinges	Riveting frames
Planer	Sorting tin
Lathe machine	Rolling tin (power press)
Milling machine	Foot press stamping
Forming tools	Power press stamping

POSSIBILITIES FOR ONE-ARMED MEN

Soldering	Wiping out cans
Testing cans	Touching up cans
Trimming	Air brushing
Riveting covers	Forming tools
Shearing (power press)	Flattening
Feeding automatic machine	Eyeletting
Straightening molds	Punching holes
Forming tools (work arm necessary)	Grinding machine (work arm necessary)
Sand papering	Jig sawing
	Foot press stamping

WORKING CONDITIONS

1. Union. There are several large unions in the metal industry, but a great many of the factories visited had open shops.

2. Wages. Generally speaking the wages are high, ranging from \$10 to \$15 for unskilled work and from \$20 to \$45 for skilled work.

3. Buildings. Conditions in new factories are excellent, but there are a great many smaller factories in old buildings, where there are no elevators and where conditions in general are very poor.

4. Nationalities. Almost all nationalities are taken. Only a few negroes are employed. Employers seem to feel that white men do not like to have negroes working with them.

ADVANTAGES FOR CRIPPLES

1. A good deal of the work is bench work and is seated.

2. It is practically non-seasonal, except in the Lighting Fixture trade.

3. The wages are high.

4. Although some of the work is very skilled, the majority of employers interviewed agreed that a man could learn most of the processes in five or six months.

5. Most of the employers are willing to take learners.

DISADVANTAGES FOR CRIPPLES

1. There is a great deal of heavy machinery, such as power presses, which are rather dangerous, and the spinning machine, which is extremely heavy and tiring to work at.

THE SILK INDUSTRY

The silk industry is not recommended for cripples. The greater part of the work is piece work, which entails haste and strain, and the rooms are full of swiftly moving machines which make the noise and vibration very bad. The air and ventilation in the large mills are good, but most of the workers seem to feel the strain of the conditions. Moreover, most of the work is done standing, and it all requires two hands.

An objection to taking on learners in the industry is that the material is very valuable. Manufacturers, for that reason, prefer not to employ workers who will waste it. While it might be possible to place learners, they would have to pass a long period of apprenticeship before they could earn a good wage. The few simple processes are all done by girls earning about \$15 a week.

For skilled work wages vary from \$15 to \$25 a week. A very skilled man working at high speed can make as much as \$35, but this is unusual. There are jobs at inspecting for \$8 and \$10 a week.

PROCESSES

The following is a description of the processes through which the product passes. This full description is given in order to illustrate the statements made above as to the inadvisability of placing cripples in this trade. The description which follows applies to large mills and refers to silk by the yard and also to ribbons. The same obstacles are found in all branches of the industry since they are inherent in the industry itself.

1. The silk comes into the mill in skeins which are put on small wheels and wound onto spindles. This work is usually done by girls, each girl tending several machines. The work is not difficult, but it is a strain on the eyes as the threads must be carefully watched. Two hands are needed for it because it is necessary to disentangle the fine threads and sometimes to retie them. It is necessary for the worker to stand as he must walk back and forth to the different machines. The noise here is not excessive, but the wages are not high, being about \$15 a week.

2. The silk is then wound from some of these spindles onto quills, or wooden pegs that look like bobbins, about six inches long. These are used later for shuttles in the weaving department. These quills are usually tended by girls, and the work is very much like the work in the winding department. The wages here are also about \$15.

3. The rest of the spindles are then taken to the wrapping department and put on large machines which hold from 50 to 1000 spindles. The threads are drawn off all of these at once and wound around a huge wheel ten to twelve feet high. This machine is run by a man who stands between the spindles and the big wheel. He must have both hands because he watches these threads as they come, picks out all flaws, and ties the broken threads. He must have both feet because he stands on one leg and runs a treadle with the other. This treadle turns or stops the big wheel so that the man may have a chance to adjust any flaws. This process makes a wide layer of silk threads. The man then goes to the other end of the wheel and winds this layer onto a huge roll. At this task he sits down. He must have both hands in order to adjust the threads, but he could do this part of the work with one leg. If, therefore, the work could be divided it would be possible to use a one-legged man. This is skilled work and is piece work. Men make as high as \$35 a week.

4. Next the material goes to the twisting department. Twisting could be done by a one-legged man or even by a man with no legs and is the one opening in the silk industry for a cripple. However, as there are not very many men employed in this branch even in a large factory, it does not give much opportunity. The employee sits in the middle of a frame with the threads passing across the frame in front of him. He twists the threads together by hand and winds them slowly on a roll. This is all hand work and of course two hands are needed in order to sort out and to twist the threads. As it is very fine work, only skilled workers are employed. This is, therefore, an obstacle to the employment of cripples since even the one job that is open to a cripple is open only to a skilled worker.

5. The material, which is now the finished warp, is put on the weaving machine and the quills described above are used as shuttles, weaving silk out of this warp. This is the heaviest work in the silk industry. The noise is deafening and the vibration excessive. Both men and women are employed in this kind of work. It is all piece work and the employee can make as much as \$30 a week, if he works at great speed. Two hands are required to take care of these machines which are very complicated. It is usually necessary to stand all of the time, though in some factories stools are provided. As a man must attend several machines, it would not be possible for him to sit much. This is highly skilled work and would not be open to a learner. A man with a crippled leg might be employed here if he could stand all the time, but the general strain is so very great that it would be very undesirable work for him.

6. The finished material is next taken to the drying room. Here there is a huge machine tended by two men. The silk is passed from one roller to another over hot pipes in order to make sure that it is perfectly dry. Two hands are needed to manage the machine as it is complicated, but a one-legged man could do it if he could stand most of the time.

7. The silk is then given to employees who measure and inspect it. This work is seated and would be possible for either a leg or an arm cripple. The wages are only \$9 and \$10 a week.

8. The last process is packing the bolts of silk in trunks and boxes. Two hands are necessary for the work. A man slightly lame might do it, but a severely crippled man would be handicapped since he must walk about with the bolts in his arms.

CIGAR MANUFACTURE

The cigar-making trade offers good opportunities for handicapped men in that most of the operations are performed seated. Men using crutches, men with one leg, and even men with no legs can earn a living at this trade if it can be taught to them. There is not much chance

of forming classes in the factories unless the trade unions can be induced to cooperate in this respect. However, many of the employers will take individual learners and have no objections to handicapped men.

There is no chance for one-armed men, or even for men with missing fingers, as the work requires special skill with the hands. The eyesight also must be unimpaired.

PROCESSES

1. Sorting and dampening. The tobacco is delivered to the factories in large bales, in which the leaves are packed dry. In the sorting and dampening room, the bales are opened, and the tobacco sorted into different grades. The leaves are then thoroughly moistened, partially dried, and packed together damp. A few large factories have sprinkler systems installed, but in most factories the dampening process is done by means of pails and tubs. In the small factories, the owner often prepares the tobacco and distributes it.

This process can only be performed by active men with the use of arms and legs. A one-armed man might distribute material, but could not earn a living wage.

2. Stripping. This is usually done by hand, but some of the large factories have installed stripping machines, not as a labor-saving, but material-saving device. The work is almost always performed by girls or women on account of their deftness and lightness of touch.

The stripper sits on a stool facing a tub in which are packed the damp tobacco leaves. She selects a leaf, quickly smooths it out, seizes the larger end of the midrib with thumb and fingers of the right hand, and with a jerk removes it entirely, thus dividing the leaf into two parts. At the same time, with a deft motion of the left wrist, she twists the leaf around the left hand to keep it from tearing while the midrib is being removed. The two half leaves are piled on another stool and the midribs thrown on the floor at her side to be carried away by another worker.

There is a great demand for strippers. The process could be performed by men with one leg or none, but the wages are small.

If the machine is used, the stripper sits facing the machine, which she starts by pressure of one foot. The leaf is smoothed out and passed, large end first, over a roller, in the middle of which two thin sharp knives set close together neatly cut out the midrib, which falls into a pan below. The half leaves are piled at the back of the machine. The machine is easy to run and is not dangerous. It could be run by a one-legged man.

Strippers are sometimes paid by the piece, more often by the week. Wages average \$12 a week.

3. Bunching and binding. This and the following process complete the actual making of the cigar. With the best quality of material, the two operations are done by the same worker and always by hand. Bunching and binding are sometimes done by machine and sometimes with the help of a mold.

If done by hand the workers sit side by side in a long row facing a counter, divided by a three inch partition so that each worker has a portion for himself. His utensils are a smooth board about a foot square, a thin sharp knife, a tiny cup of paste, and a clip such as is seen in retail cigar stores. The tobacco is passed out in assorted piles, filler or imperfect leaves, crumpled leaves, and binders, or practically perfect, smooth leaves of fair size. The worker prepares the binder by laying it on the board and cutting from it a roughly outlined oblong. He then gathers in the left hand enough of the filler leaves to make a cigar, presses them together, lays them on the binder and with a quick motion rolls them into a cylinder with the binder outside to hold the filler leaves. If he is to complete the cigar he goes on to the next operation, but if he is working at team work, the unfinished cigar passes to other hands.

If molds are used, the filler, with the binder outside, is placed in a mold, which is a board two inches thick with several hollows shaped like half a cigar. A similar board is placed on top, and the two clamped together until the tobacco is partly dried and molded into shape ready for the wrapper. With these molds, smaller pieces can be used as filler than in the hand-made process.

If the bunching and binding machine is used, the worker sits facing the machine, which he controls with one foot. The binder is placed and immediately seized by the jaws of the machine, which at the same time releases enough tobacco to make a cigar. Both pass through the machine and come out a roughly made cigar ready to be wrapped. This machine uses even the tiniest scraps for filler and turns out cigars of cheap grade at a rapid rate. A one-legged man with the use of his hands could run the machine.

Wages average \$22 a week for the hand work and somewhat less for the machine-made and molded cigar. All work is paid for by the piece.

4. Wrapping. This is the artistic operation in cigar making. It can be done only by skillful fingers and by men with good eyesight. Men with one leg or no legs can learn, provided they have the necessary manual dexterity.

The wrapper is a perfect leaf of good grade tobacco. The worker lays the leaf on the board and cuts from it an oblong. He then cuts each end of the unfinished cigar with the cigar clip, which also measures the length of the cigar. Next he places the cigar at one end of the wrapper, and with the use of the board, the palm of the hand, and finally the fingers, he rolls the wrapper spirally, completely covering the cigar. The ends are fastened with a tiny bit of paste, and the cigar is finished.

In some factories the wrapping is assisted by a simple machine, operated by one foot. It has a suction plate which holds the leaf flat and smooth while the worker wraps it around the cigar.

"A good cigar-maker is an artist," say some in the trade. They contend that a man cannot learn this part of the trade after the age of twenty. Others guarantee to teach it to any man of ordinary intelligence in six months.

Wages average \$25 a week. The work is always hand work and always piece work.

5. Banding or branding. In some factories cigars are wrapped with a narrow band, or the name of the factory is branded on the cigar. Both operations are done by machines, usually run by girls, though they could be run by one-

legged men. Wages average \$12 a week. Not piece work.

6. Packing. This can be done only by men with active use of arms and legs, and excellent eyesight. The cigars are sorted as to color and packed in the familiar cigar box. Wages average \$35 a week. Piece work.

WORKING CONDITIONS

1. Union. There is an international cigar-makers' union of considerable strength. A few factories are completely unionized, but there are many more run on the plan of 'open shop'.

2. Wages. The average wage in the chief operations is about \$20, with a minimum of \$15 and a maximum of \$35. The highest paid process is that of packing, wages averaging about \$35, but this work is out of the question for handicapped men. The union wages vary from \$12 to \$40 per week, according to the grade of tobacco and the skill of the worker. There is little use for unskilled labor; hence the wages are very low, averaging \$8 a week.

The work is not seasonal, and an experienced worker never lacks employment.

3. Hours. In union shops, the hours are from 8 a. m. to 5 p. m. with an hour at noon, and from 8 a. m. till 12 noon on Saturday. In non-union shops, the hours vary, and there is a great deal of overtime. The usual hours are from 7:30 a. m. until 6 p. m.

4. Number of factories. The trade is carried on in about 600 factories scattered throughout the boroughs of Manhattan and Brooklyn. About 500 of these factories employ fewer than 20 men each.

5. Types of buildings. The buildings vary from the small crowded room behind the retail cigar store to the huge modern concrete building. In the latter are freight elevators, automatic fire-alarm systems, ventilating systems, etc. The former, possessing none of these advantages, are fortunately almost always on the street floor.

There was no attempt at welfare work, such as lunch rooms, rest rooms, etc., in the factories visited.

6. Physical conditions. In the large factories the light, ventilation, space, and cleanliness are

good. The small places are crowded and poorly ventilated.

Men and women work side by side in the small factories. In most of the large factories they work on separate floors or at opposite ends of a large room.

There is no dust or noise. The smell of tobacco is all-pervading though it is claimed to be harmless, and not unpleasant except at first. Most of the workers bite the ends of the cigar to help shape it, instead of using the knife. As a consequence their lips are constantly stained. Many of the men and some of the women chew the tobacco.

7. Nationalities. There is no predominant nationality among the men, but practically all are foreigners of a low, rough type with a goodly sprinkling of negroes. Employers would welcome a better class, but it is doubtful whether more intelligent types could be made contented. The women are almost invariably Italian.

DRUGS AND CHEMICALS

The drug and chemical industry varies so greatly in the individual factories that it is difficult to make a general report. Under the general head are included the manufacture of numerous kinds of medicines; medical agents, such as chloroform, ether, iodoform, etc; toxins and serums used in cases of diphtheria, tetanus, typhus, etc.; industrial chemicals, as alcohol, various acids, gasoline, benzine, etc.; household necessities, such as extracts, baking powders, etc.; and toilet necessities, as talcum powder, perfumes, etc. With each article manufactured, the processes vary. It seems better, therefore, to classify the industry according to kinds of work rather than by distinct operations or processes.

KINDS OF WORK

1. Compounding and experimenting. This work is done largely by trained chemists. It is the technical part of the industry and consists of the combining of elements to form compounds. It is sometimes dangerous, owing to the possibility of explosion, or to the rapid reaction of the various elements when combined.

It is often unpleasant because of dust, smells, etc. It offers no possibilities for handicapped men.

2. Testing. This is usually done by men trained in the factory. It requires care and thought, but little if any technical knowledge. It includes careful weighing of samples and testing these samples by heat or other agents to determine the exact constituents of the compound. It could be done by one-armed men, and would be possible for one-legged men, since the worker sits part of the time. Only one or two men are used in each factory in this capacity. Wages, from \$15 to \$20 a week.

3. Sifting. Many of the powders must be sifted during the course of manufacture. This is generally done by hand, sieves of varying mesh being used. It could be done by one-armed men, but since the worker is often compelled to inhale the powder, men are seldom kept at this work for any length of time. Wages average about \$15 a week.

4. Heavy machine work. Under this head is included all the work of running stills, presses, and vats. The men are obliged to lift and carry heavy pails, and to empty them in huge vats, sometimes to climb ladders. In these vats, the material is heated to the boiling point, during which process it is stirred with long poles or paddles. The men often are compelled to work in overheated, steam-filled rooms, and make their way through narrow passages between the vats and mammoth presses. The work is impossible for any but strong, robust, able-bodied men.

5. Light machine work. There are many light machines used in this industry, for example, those which turn out tablets or pills in the manufacture of drugs. The material is poured into a funnel-shaped receptacle, through which it passes into the machine and comes out in the form of tablets or pills which drop into boxes or cans below the machine. The worker starts the machine with one hand, and it is his business then to watch the machine, stopping it when the material is used up. A trained machinist keeps all these machines in repair. The men are required to clean the machines, but it could all be done by one-armed men. Wages, from \$17 to \$25 a week.

6. Packing. The tablets, pills, powders, etc., are put into bottles, boxes, or cans, being either weighed or counted. The work is sometimes done by hand, sometimes by light machines. It is performed seated, and is usually done by girls, but it could be done by men with one leg, or no legs at all. Wages, from \$8 to \$15 a week.

7. Labeling. After the bottles, boxes, or cans are filled, the labels are pasted on the outside. This work is performed seated, and offers possibilities, therefore, for men with one leg, or no legs. It is unskilled work, usually done by girls. Wages, from \$8 to \$15 a week, piece work.

8. Crating. In most instances, the boxes are nailed together in the factory. They are light and easily handled. A one-armed man could do the work if provided with an artificial appliance for holding a hammer. Occasionally the covers are nailed on by a nailing machine which could easily be managed by a one-armed man. The box, about one foot square on the end by eighteen inches in length, packed with cans or bottles, is passed along a runway under a chaff bin where the spaces between the contents are filled with chaff. At the end of the runway a man receives the box, folds over the paper lining, places the cover, and slides it along the table toward the nailing machine, where another worker receives it. This man pushes the box under the arm of the machine, which descends, and with one stroke puts in several nails. While the arm of the machine is going up, the worker turns the box, and when it again descends, the other end of the cover is nailed on.

Some articles are packed in barrels, and the interstices filled with chaff or sawdust. Since the filling material is so light, this work could easily be done by one-armed men.

In some factories, narrow metal strips are tacked along the edges of the boxes after they have been nailed shut. This work could be done by a one-armed man if provided with an artificial appliance for holding a hammer.

9. Special work. A novel department of the industry is the care and nurture of live animals, such as horses, pigs, guinea-pigs, which are used in connection with the preparation of toxins.

This partakes somewhat of the nature of farm work. It is done under highly trained direction and the animals are given the best of care. The work could be done by one-armed men or by one-legged men if the latter were not too badly disabled.

WORKING CONDITIONS

1. Wages. The wages in the industry vary from \$8, the weekly pay of the unskilled girl worker, to \$30 weekly for skilled work, and of course to a much higher sum in those positions where technical knowledge is required.

The work is not seasonal, and there is a constant and growing demand for workers of every kind.

2. Hours. Employees work from 9 to 10 hours daily, and from 50 to 54 hours weekly.

3. Location of factories. The drug and chemical industry is scattered over the city in various localities usually along the water front.

4. Types of building. The buildings are, for the most part, modern structures of several stories, well lighted, heated, and ventilated. They are equipped with freight elevators, fire-proof stairways, fire-alarm systems, etc. Some, however, particularly those in which industrial chemicals are manufactured, are low wooden buildings, spread over an extended area.

5. Physical conditions. There are unpleasant features connected with the industry, such as dust-laden atmosphere and disagreeable odors. Fans and blow-pipes are used in many places, partially to alleviate the first, but there is no remedy for the second.

In the making of certain compounds, the fumes are poisonous, and the worker is obliged to wear a mask or towel tied across the lower part of the face. There is more or less danger of explosion, or of too rapid reaction causing the spilling over of heated substances. The men who work about the huge vats must be exceedingly careful of their footing, as a fall into one would mean death by scalding.

6. Nationalities. There is no predominant nationality among men or women. The workers vary in intelligence from the low, foreign type to the highly skilled workman and trained chemist.

THE CANDY INDUSTRY

The future of the candy industry after the war is so promising that, on first thought, it would seem an excellent industry in which to place cripples. Several stock brokers have called the attention of their customers to the fact that the candy industry can be considered one of the stable industries after the war for the following reasons:

1. The steadily increasing consumption of candy per capita.
2. The fact that wherever the sale of liquor is curtailed, the consumption of candy increases from 15 per cent. to 50 per cent.
3. The chocolate ration of the soldier and sailor will establish a candy habit. This point of view has been corroborated by several large candy manufacturers.

The candy industry is suffering from the shortage of labor as greatly as other industries. In few instances, however, have any factories thought of employing cripples and the general attitude was that the work was not possible for cripples. This may be due to the fact that, in many of the factories which make mainly chocolate products, the work is very heavy and requires considerable lifting. Women do almost all the light work.

The president of the State Candy Manufacturers' Association was interviewed. He did not consider that there were many opportunities for cripples in the candy trade unless they were willing to do the light work done by women and receive women's wages—from \$12 to \$15. According to a letter to an investigator from the *International Confectioner*, a trade paper, the industry as a whole, including jobbers, etc., employs anywhere from 150,000 to 200,000 people. There are many places that could be filled by men who have been crippled in the leg or legs, but none for those with crippled hands.

In almost every factory, there was some work which could be done by one-legged men. In only two factories, did the manufacturers state positively that they could not employ cripples in any of the processes. Opportunities for cripples in the skilled and unskilled work vary

greatly. Most of the light work is done by women, although in one of the large factories we were advised that they could employ crippled men putting tin-foil on chocolate. Little of the men's work can be done seated. It requires lifting, standing, and continual moving about. This applies more directly to the chocolate and cocoa factories than to the candy and bonbon factories. In some of the smaller factories, one-legged men could be employed in chocolate molding, dipping, and wrapping of individual candies. This work is seated in the smaller factories. In the larger factories, it is all standing, requires lifting and moving about and is too heavy for cripples. In some of the factories, one-legged or legless men could be employed in the shipping department as stock clerks, etc., where from thirty to forty men are sometimes employed.

It is difficult to describe in detail the processes, as the candy manufacturers seem rather unwilling to take an investigator through the factory. Only five factories were really inspected carefully.

PROCESSES

Chocolate and Cocoa Factories

1. Roasting. The roasting of the bean is done by an automatic machine. The roasted beans are automatically fed into the grinding machine.
2. Grinding. The cocoa bean is ground into nibs in a high grinding machine. The man is obliged to shovel cocoa into these grinding machines. Then the nibs are shoveled into another grinding machine, which pulverizes them.
3. Melting. The pulverized cocoa is then melted down in vats and the cocoa-butter separated from the cocoa. These machines are tended by only one man, who has to walk up and down continually, turning levers on and off. The cocoa is then dried and pulverized again. This necessitates shoveling it into large pans, lifting these pans, and emptying them into a pulverizer.
4. Mixing. Cocoa which has been melted down and not separated from the butter is then shoveled into large pans, and carried over into the mixer, where more cocoa-butter, powdered milk, and sugar are shoveled in.

5. Molding. This mixture is then put into large trays and poured into a long tray-like machine, from which it is again shoveled into a cone-like device which molds it into cakes. (In some of the smaller factories, this work is seated.)

6. Wrapping. These cakes are then carried into a room, where they are wrapped by girls. The powdered cocoa is also put up in tins by girls.

7. Boxing. Lids are nailed on boxes.

8. Assembling boxes. The wooden slabs are placed on a steel plate and the nails driven in automatically. There is a pedal which is used. This is also work which could be done by one-legged men. There are only a few men employed in boxing and assembling of boxes in each factory.

Candy and Bonbon Factories

The only positions that could be surely held by a one-armed man are packing the candies into small boxes and managing the cutting machine. There are some other machines, however, which might be run by a one-armed man with some slight adjustment; for example, in the casting of gum and licorice, small trays filled with flour are put on a machine which automatically presses on this flour and makes molds of various shapes. This same machine then fills these molds with liquid candy. The tray is then lifted out and put on a rack. As these trays are both small and light, they could be managed with one arm. Most of the machinery in the candy factories is so complicated that it would be difficult to manage with only one arm.

There are a number of processes which could be done by one-legged men because it is possible for the worker to be seated. The following are the best of them:

1. Cream manufacturing. The cream is put into a tank and is beaten up by a machine. The tank is fed and emptied automatically, and the worker has merely to attend the machine. He must be on his feet but could do it with an artificial limb.

2. Making stick candy. The material is put on a table twenty feet long, rolled out into sticks, and cut up. The man who does this must be on his feet, but he could do it with an artificial leg. He must, however, be a skilled worker.

3. Pan room work. In this process, the candy which has been dipped is put on trays and dried. The worker must carry these trays a short distance, but the trays are light and a man with an artificial leg could manage it.

4. Bonbon work. This consists in molding the fancy bonbons either by hand or machine. Most of this work is seated and, therefore, possible for a one-legged man.

5. Making almond paste. The almonds are put into a large colander and the steam turned on. Then they are skinned, are put on a table, and sorted by hand. This can be done seated. They are then put into a machine and ground up. The tender of this machine must stand, but the work is light and could be done by a one-legged man. The almonds are then put into a cooker, which automatically beats them into a paste mixed with sugar. This is seated work.

6. Making peanut butter. The material is put into a large tank and ground by a stone machine. This is attended by a man who must be on his feet but the work is not heavy.

7. Making cocoanut roll. This is cocoanut and sugar which is mixed together on a marble slab, rolled into small strips, and cut up by machine. The work is done standing but is light work.

8. Tending press. This work consists of tending a machine which stamps the different candies. The work is light, but the worker must stand.

9. Cocoanut bonbon dipping. The bonbons are put into a wire box which is dipped into a tank of chocolate, raised, drained, and stood on a drier. The worker must stand all the time, but the work is light.

10. Wrapping. This is piece work and requires skill and speed; it is done mostly by girls because their hands are quicker, but if a man were trained or specially adapted to the work he could do it. It is, of course, seated work.

POSSIBILITIES FOR ONE-LEGGED MEN

Process	Weekly Wage	
	Minimum	Maximum
Chocolate molding (in small factories only)	\$12	\$15
Dipping	12	15-18
Wrapping individual candies	12	15-18
Boxing	12	15
Assembling boxes	12	
Cream manufacturing	12	
Making stick candy	12	
Pan room work	12	
Bonbon work	12	
Making almond paste	12	
Making peanut butter	12	
Making cocoanut roll	12	
Press work	12	
Cocoanut bonbon dipping	12	

POSSIBILITIES FOR ONE-ARMED MEN

Process	Weekly Wage	
	Minimum	Maximum
Packing	\$12	
Cutting candy	12	

WORKING CONDITIONS

1. Wages. The work is not piece work. The wages are not high. In most factories, the learners average from \$8 to \$12. The more skilled workers do not get much more than \$18 to \$25, although in some factories the employers claimed that they paid a few very skilled men from \$50 to \$100 a week.

2. Hours. Hours are long.

3. Factories. Conditions in the larger factories are excellent; in the smaller ones not so good.

4. Nationalities. The laborers are mostly Italians and Greeks, although employers do not discriminate against any nationality.

ADVANTAGES FOR CRIPPLES

1. The number of learners is not limited.
2. The trade is not seasonal. The busiest times are from August to December, making Christmas candies; and from January to Easter, making Easter candies. There is never a really slack period.

DISADVANTAGES FOR CRIPPLES

1. Wages are generally low.
2. The hours are long.
3. In some instances, the conditions are poor, although in many of the larger factories conditions are excellent.
4. Most of the work for men is heavy and the very skilled work requires years of training and is not as well paid as skilled work in other trades. Many of the manufacturers claimed that it required several years for a man to learn any of the skilled work.

THE CELLULOID INDUSTRY

As a whole the manufacturing of celluloid articles is a very good trade for cripples. The factories are generally pleasant and airy. Most of the employers gave the impression of doing everything possible for the comfort of the workers.

All the employers interviewed were willing to take cripples and teach them in the factories. They were all agreed that there were almost no jobs that leg cripples could not do. A man suffering with lung wounds would not be wisely placed in the buffing or polishing room on account of the dust. There are, however, blowers to take away a great part of the dust. A man without legs or one very much handicapped in getting about should not be in one of these factories on account of the danger of fire.

PROCESSES

Combs, Toilet Articles, etc.

The celluloid comes to the factory in large sheets which are kept in fire-proof vaults. The first operation is the making of the larger articles as trays, etc.

1. Stamping. The sheet of celluloid is heated in hot water to soften it. Then a heavy stamping hammer with the die the proper shape comes down on to the celluloid on the machine plate and presses out the shape of the article. Seated work possible for one-armed or one-legged men. Wages, from \$14 a week to \$30 and \$35.

2. Bandsawing. The work is sawing the celluloid sheets into shapes for frames, clock backs, brush backs, etc. It is seated, and possible for a one-legged man or a one-armed man, if provided with a work arm. Wages, \$14 a week up.

3. Circular sawing. The work is sawing the sheets of celluloid into sizes for the various articles. It is seated and possible for a one-legged man or a one-armed man, if provided with a work arm. Wages, \$14 up.

4. Pressing. The celluloid is heated in hot water, put on a machine plate, and pressed into shape to make bowls and boxes. Standing work for a one-armed or one-legged man. Wages, \$14 up.

5. Breaking up scrap. This consists in breaking up the pieces of stock left over from operations so that it may be used again. Seated work for one-legged or lame men. Wages, \$14 flat.

6. Lathe operating. The piece of celluloid is placed into the chuck of the lathe and as it revolves the stock goes against the tool. Whatever shape or groove desired is cut in the celluloid. Standing work for one-legged men. Wages, \$14 up.

7. Routing. This is done by a sort of chisel which cuts out the groove in looking-glass backs into which the glass is to be fitted and in the backs of brushes into which the brush is to be fitted. Seated work for a one-legged man who has his right leg. Wages, \$14 up.

8. Polishing and sanding. Consists in rubbing the articles with a sand preparation to take off any roughness, and polishing. Seated work for one-legged men. Wages, \$14.

9. Scraping and finishing. Consists in scraping the edge of articles to make them smooth and ready for finishing. Seated work for one-legged men. Wages, \$14.

10. Beveling combs. After the comb is cut out it is run through this machine which has a knife for beveling the back. Seated work for one-legged men. Wages, \$14 up.

11. Cutting teeth in combs. Consists in operating a machine with gauged sharp knives

that cut the teeth out of the solid pieces of celluloid the comb size. Seated work for one-legged men. Wages, \$14 up.

12. Sawing teeth. One man operates several machines. These machines make expensive combs as the fine saw cuts out the teeth one at a time. Standing work for one-legged men. Possible for a one-armed man if he has one hand and a work arm. Wages, \$14 up.

13. Rubbing. Polishing by hand. Seated work for one-legged men. Wages, \$14 up.

14. Jig sawing. This is the same as band saw work. It is seated work, possible for one-legged men or a one-armed man with a work arm. Wages, \$14 up.

15. Buffing. The buffers are flannel wheels that revolve rapidly. The article of celluloid is held against the buffer and polished. Seated work for one-legged or lame men. Wages, \$14 up.

16. Brush cleaning. Consists in cleaning the partly finished article with a stiff brush. Seated work for one-legged men. Wages, \$14.

17. Brush boring. A machine bores holes in the brush to put the bristles in. Seated work for one-legged or legless men. Wages, \$14 up.

18. Putting bristles in the brushes. The bristles are fed into the machine, which automatically bunches the bristles, wires the bunch, and inserts the bristles into the holes in the back of brush. Seated work for one-armed or one-legged men.

19. Fitting steel into handles. The man uses a vise in which the piece of steel is held while the celluloid handle is put on. Files, button-hooks, etc. are made in this way. Standing work possible for a one-armed man who has one hand. Wages, \$14.

Advertising Novelties—Buttons, Paper-Weights, etc.

1. Operating foot press. The size and shape of the celluloid button or article is pressed by this machine. Seated work for one-legged men. Wages, \$10 up.

2. Soldering. Consists in using a soldering iron. Seated work for one-legged men. Wages, \$14 up.

3. Power press operating. Consists in cutting out metal or tin discs that go in the back of buttons. Seated work for one-legged men. Wages, \$14 up.

4. Press feeding (printing). This press prints the advertising that is inserted between the tin back and celluloid face of the button. Standing work for one-legged men. Wages, \$14 up.

5. Tapping. Consists in cutting holes in the metal discs. Seated work for one-legged men. Wages, \$10 up.

6. Pins in buttons. Consists in putting the pins in the finished buttons, unskilled. Seated work for one-legged men. Wages, \$10 up.

POSSIBILITIES FOR ONE-LEGGED MEN

<i>Combs, toilet articles, etc.</i>	<i>Weekly Wage</i>
<i>Process</i>	
Stamping	
Breaking up scrap	\$14
Buffing (polishing)	14-36
Brushing and cleaning	14
Brush boring (legless)	14
Lathe operating	14
Routing	14
Polishing and sanding	14
Scraping and finishing	14
Beveling	14
Cutting teeth in combs (must have right leg)	14
Rubbing	14
Jig saw operating	14

POSSIBILITIES FOR ONE-ARMED MEN

<i>Combs, toilet articles, etc.</i>	<i>Weekly Wage</i>
<i>Process</i>	
Stamping	\$14 up
Band sawing	14 up
Circular sawing	14 up
Pressing	14 up
Fitting steel into handles	14 up
Putting bristles in brushes (right hand and work hand)	
Sawing teeth, automatic (have left hand)	14 up
Jig sawing (work hand)	14 up

POSSIBILITIES FOR ONE-LEGGED MEN

<i>Advertising novelties</i>	<i>Weekly Wage</i>
<i>Process</i>	
Operating foot press	\$10 up
Soldering	10 up
Tending power press	14 up
Press feeding (printing)	10 up
Tapping	10 up
Putting pins into buttons	10 up

WORKING CONDITIONS

1. Union. The industry is not unionized.
2. Wages. The wages are very good, ranging from \$14 to \$36 a week and up. The work is both week and piece work, so individual ability is paid for.
3. Nationalities. All nationalities are taken; there are many foreigners, particularly Italians.

ADVANTAGES FOR CRIPPLES

1. There are opportunities for both one-armed and one-legged men.
2. Much of the work is seated.
3. The work is light, no heavy lifting.
4. The work is easily learned; all employers are willing to teach in factories.
5. Factories are good places to work, have light and good air.

DISADVANTAGES FOR CRIPPLES

1. The celluloid is inflammable. While all precautions for fire protection are taken, there is danger for cripples, for employees must get out quickly in case of fire.
2. There is some cotton dust in the buffing room.

OPTICAL GOODS

The optical goods industry is a growing one and can be looked upon as being stable during and after the war. The trade of the small retail dealer has been considerably changed since the beginning of the war. Formerly, the lenses were bought already ground, but now a great many of the retail dealers have found that they

cannot buy their lenses already ground, and, therefore, have to do their own grinding.

The majority of the employers interviewed were very anxious to cooperate with the movement for employing cripples. They are all willing to take a few learners but, of course, where the factory is small, they are unable to take very many.

The president of the Wholesale Optical Manufacturers' Association of New York stated that he did not think that one-armed men could be used, but he thought there was a great opportunity for one-legged men. The editor of the *Optical Journal and Review* maintained that one-armed men with work arms could work at some of the processes in the trade and that one-legged men could be employed at almost all the processes. He said that a great many learners were taken. The editor of the *Optical Record* thought that one-armed men could be employed at edging and polishing lenses and one-legged men at most of the other processes. The majority of the employers seen thought that one-legged men could be employed in almost all processes. Only one or two employers thought that one-armed men could be employed and one employer said that he would take one-eyed men.

PROCESSES

1. Assembling. Assembling frames and putting in lenses; this is very skilled work and is mostly seated. Legless men could be employed at it.

2. Blocking. This is highly skilled work and is almost all seated; it could be done by legless men. It consists of sticking the lens on a round metal disk with tar. It is rather difficult as it is necessary to have the lens fit on the middle of the disk.

3. Lens grinding:

(a) Surfacing. This is very skilled work and is almost all standing; it could be done by one-legged men. It is done by placing lens on a revolving metal disk. A pointed metal piece is placed on the blocked lens and grinds off the glass.

(b) Edging. This is a simple process and

is usually standing work; it could be done by one-legged men, possibly by a one-armed man. The lens is held between the fingers of both hands and the edge ground down on a revolving wheel. (In some of the small factories, the edging and surfacing machines have a foot pedal, but in the larger places all the machines are worked by hand.)

(c) Polishing. This is quite simple work. It is done standing. It could be done by a one-legged and, possibly, by a one-armed man. The lens is held between the fingers and placed on a revolving metal disk, which is covered with rouge and some sort of powder. These lenses are then sent to the final polisher. The final polisher consists of a number of metal disks upon which the lenses are placed. After being covered with rouge, they are screwed into place and the machinery revolves and they are polished down to a fine surface. One man can tend the series of polishers and walks up and down turning hand levers.

4. Lens cutting. This is highly skilled work, is usually seated and could be done by legless men. It requires a highly trained eye. The lenses are measured according to geometrical charts and are then marked. They are then placed in a small cutting machine which has to be set very carefully. Only a few men are employed at this work in each factory.

5. Surface grinding for instruments. This work is done in a few factories. It is skilled work and is seated and it could, therefore, be done by legless men. It is almost similar to the process of surfacing but it takes longer and requires more patience.

6. Sorting. In large factories, they make first, second, and third grade lenses. These are sorted by testing them with an instrument. It is very unskilled work and it could be done seated. It is sometimes done by girls.

7. Wrapping. In large factories, there is a good deal of wrapping glasses in paper, etc.

POSSIBILITIES FOR ONE-LEGGED MEN

Process	Weekly Wage	
	Minimum	Maximum
Assembling	\$18	\$30
Blocking	18	25
Lens surfacing	18	30
Lens edging	15	30
Lens polishing	15	30
Lens cutting	18	35
Surface grinding for instruments	18	35
Sorting lenses	12	

POSSIBILITIES FOR ONE-ARMED MEN

Process	Weekly Wage	
	Minimum	Maximum
Lens edging	\$15	
Lens polishing	15	
Lens cutting	12	

WORKING CONDITIONS

1. **Wages.** Wages for learners range from \$10 to \$12 a week. Most of the employers maintain that, in six months, men ought to be able to earn from \$15 to \$20. Very skilled workers earn from \$25 to \$35.

2. **Physical conditions.** Fair.

3. **Nationalities.** On account of the shortage of labor, they are willing to take men of any nationality. Most of the workmen seem to be of a good type.

ADVANTAGES FOR CRIPPLES

1. It is a non-seasonal trade.
2. The work is light and could be done by one-legged men, some of it by one-armed men.
3. The wages are high.
4. In general, the conditions, in regard to light, ventilation, etc., are fair.
5. While a great deal of the work is skilled, most of the employers agree that a man could learn a good deal in six months.
6. Learners are taken in almost all factories.

DISADVANTAGES FOR CRIPPLES

1. The principal drawback to placing cripples in this trade is that there are few large factories, especially in New York City. Of course, the smaller ones cannot take very many learners at a time.

2. A good deal of the work is standing but it requires very little strength. Opinions differ as to the desirability of standing work for men with leg amputations. A one-legged man who is one of the investigators for the Institute, claims that he is perfectly able to stand all day long, whereas one of the physicians of the staff maintains that a cripple with a recent leg amputation cannot do standing work. However, in some of the smaller factories, they have high stools for the men, and it would seem perfectly possible for the larger factories to allow the men to sit at a good deal of the work.

THE MOTION PICTURE INDUSTRY

The motion picture industry is growing rapidly and there are openings for men in every branch. It is a trade, however, that requires particular knowledge. Men must be trained. The wages are exceptionally high and larger opportunities are constantly being offered to men in the trade.

The following information has been gained from Mr. Burr of the Paramount Picture Corporation; Mr. Hugh Ford of the Famous Players; Mr. Smith of the Vitagraph Studio; Mr. Gray and Mr. Hammer of the Biograph Laboratories; Mr. Pearsons of the Biograph Studio and one of the directors of the Metro Corporation. Information on the manufacture of the machine was supplied by Mr. Smith, manager of the Nicholas Power Company. These men all agree that the jobs listed in this report are possible for a cripple. All believe it is wise to establish a school to teach this trade. They are willing to give the benefit of their knowledge at any time. Mr. Burr offered to give some of his time in teaching. All employers are interested and willing to take crippled soldiers.

The trade is not very fertile in jobs for one-armed men. Men with lung wounds or diseases ought not to be in the small theaters because

of the bad air. The galvanized booth where operating or projecting is done is very hard for a man suffering with any lung or nervous disease. Many positions in the industry are very hard on the eyes.

The industry is divided into four branches: (1) producing, (2) developing, (3) distributing, and (4) exhibiting. There are sub-divisions under these general branches.

POSITIONS

Producing

1. Electrician. The man must be a trained electrician, but can get sufficient knowledge in one month of intensive study or training. This work is important in taking of pictures. The light men operate the spot light, the top and side lights. There are often five and six of these men working in one scene. The work is possible for a one-legged man if he can stand and walk. Wages are from \$25 to \$50 and up.

2. Color-effects man. The man must be an artist with thorough knowledge who can plan out the color and light effect for the picture. He is a valuable man and gets a salary of from \$50 to \$200 a week.

3. Carpenter. The scenes are built in the studios and out-doors, one scene being constructed while another is being used. The carpenter builds the frames on which the canvas is stretched. He is a skilled workman. There are a number in each studio. Possible for a one-legged man who can stand and walk. Wages, \$21 a week and up.

4. Scene painter. This man must be very skilled and possess artistic ability. He paints the scenes on the canvas that is put upon the frames made by the carpenter. Possible work for a one-legged man who can stand and walk. Wages, \$25 and up.

5. Grip. (Scene shifter). The grips take the frames or scenes after they are made and painted and set them up in forms of buildings, rooms, and various scenes. It is not highly skilled work and can be learned in a short time. It is possible for a one-legged man who can stand and walk. Wages, \$18 and up.

6. Property man. This man gets together all the furniture and fixtures and articles used

in the scenes and is responsible for any required article. Possible work for a one-legged man who can stand and walk. Wages, \$18 and up.

Developing

This is skilled work and requires a knowledge of photography and chemicals. Most of the work can be learned in two months, but some of the most highly skilled operations such as developing the negative and picture take at least six months' training.

7. Developing negatives. The negatives are brought from the studio to the laboratory, taken into a dark room, put on frames, lowered into a developing vat, and allowed to stay in this bath for a given length of time. The developer must know the exact minute to withdraw the negative from the vat. Standing work for one-legged men. Wages, \$18 minimum, up to \$40.

8. Chemical mixing. This man mixes the chemicals in which the negatives and prints are put to be developed. He must have a knowledge of photographic chemistry. Standing work for a one-legged man. Wages, \$18 and up.

9. Washing films. This man takes the racks of film after they have been developed and lowers them into a vat of running water. This operation washes the surplus chemicals off the negatives and prints. Standing work for one-legged men. Wages, \$18 up.

10. Drying films. The films after being developed are brought into the drying room which is kept at a certain temperature. In this room are large revolving drums upon which the films, still damp, are placed. Great care is necessary to regulate the temperature and moisture of this room, in order to avoid blistering. Standing work for one-legged men. Wages, \$18 up.

11. Toning and tinting. The racks and films are lowered into vats of different colored chemicals. Standing work for one-legged men. Wages, \$18 and up.

12. Inspecting. The film or picture is projected on a small screen in a booth; the inspector sits on a high stool and watches the film being run, notes all defects, and marks them to be cut out. Seated work for one-legged man. Wages, \$18 up.

13. Printing machine operating. This work is done in a dark room. The operator puts the negative into the machine and in front of the negative the unprinted film. These are then drawn over an opening behind which there is a bright light, and as the negative and film are exposed to this light the printing is done. On the machine there is an automatic attachment which regulates the light. Standing work for one-legged men. Wages, \$18 up.

14. Assembling and cutting. In this department they put the film together as it comes in 200 feet lengths from the printing department. It is necessary to paste the lengths together to make the number of feet for each reel. Seated work for one-legged or legless men. Wages, \$18 up.

Distributing

One-legged and one-armed men may fill any of the following positions. The wages depend upon the individual ability.

1. Salesman. Without a leg or an arm a man may be a successful salesman. In this position he sells the pictures to the theaters or exchanges. These exchanges also may be run by a man with one leg or one arm. The particular kind of knowledge necessary is easily acquired by any man with sufficient brains to understand any business proposition.

2. Clerical worker. There are numerous clerical positions in this branch of the industry. New York offices are paying from \$18 up to any amount that the man's ability may warrant.

3. Booker. A one-legged or one-armed man, or a man crippled in any way may be a successful booker. The booker plans the route of the pictures, that they may get to certain places on certain dates.

4. Advertiser. This man distributes the advertising matter displayed in the lobbies of theaters. He helps the exhibitor to get his pictures together and to put his show over in the best manner. Can have lost an arm or a leg or be otherwise crippled.

Exhibiting

This branch of the industry deals with the theaters where the pictures are finally shown to the public. The positions are as follows:

1. Manager. May be crippled. Usually is the owner of the theater.

2. Operator. A man with one arm might operate a machine if he were very proficient. The operator stays in the galvanized booth and turns the moving picture machine. He must understand and keep the machine in condition. Standing work for one-legged men. Wages \$25 up.

3. Electrician. This man is responsible for the lighting effects of the theater and the electrical workings of the machine. Standing work for one-legged men. Wages, \$25 up.

4. Cashier. May be a one-armed or one-legged man. Wages, \$12 up.

5. Ushers; porters; doorkeeper. May be one-armed or one-legged men. Wages, \$10, \$12, \$14 up.

Manufacture of Motion Picture Machines

Very skillful, careful work. Can be taught in factory. The following are operations for one-legged men:

ASSEMBLING DEPARTMENT

<i>Process</i>	<i>Weekly Wage</i>
Drill press operating	\$20-\$50
Lathe operating	20- 50
Gear-cutting machine operating	20- 50
Tool-making	20- 50

1. Drill press operating. The man holds the piece of metal on the drill plate, pulls a lever that raises and lowers the drill and makes holes in the metal sheet. A standing or seated job for a one-legged man. Wages, \$14 a week up.

2. Lathe operating. The man inserts into the clutch at the end of the lathe a piece of metal that is to be turned into a given size and shape. As the lathe revolves the operator runs the cutting tool against the revolving piece of metal and cuts the metal into the required size and shape. A standing job for a one-legged man.

3. Gear-cutting machine. The round discs of metal are put into the machine and sharp cutters run back and forth over the edge of the disc and cut the teeth in the disc making the gear. A standing job for a one-legged man.

4. Tool-making. This is very skilled work. He must operate all machines which make tools

used in manufacturing machines. A standing job for a one-legged man. Wages, \$30 to \$50 and more a week.

MECHANICAL DEPARTMENT

<i>Process</i>	<i>Weekly Wage</i>
Drill press operating	\$14-\$35
Making doors for lamp house	14- 35
Drilling castings	14- 35
Riveting machine operating	14- 35
Lathe operating	14- 35
Making cams	14- 35
Punching machine operating	14- 35
Automatic cutter machine operating	14- 35

All operations in this department are standing jobs for one-legged men from \$14 to \$35 per week. They are all described above, except riveting machine operating. In this process the worker puts the two pieces of metal to be riveted on the machine plate under a trip hammer, which automatically rivets the two pieces together. Standing work for one-legged men.

POSSIBILITIES FOR ONE-LEGGED MEN

Drill press operator	Developing negatives
Lathe operator	Chemical mixer
Gear-cutting machine	Washing films
Tool-maker	Drying
Making doors for lamp house	Toning and tinting
Drilling castings	Inspecting
Riveting machine	Printing machine operator
Making cams	Cutting and assembling
Punching machine operator	Salesmen
Automatic cutter machine	Booker or advertiser
Electrician's helper	Clerical workers
Grip (scene shifter)	Manager
Property man	Electrician
Carpenter's helpers	Cashier
Scene painters	Doorkeeper
Porter	Usher
	Electrician
	Color-effect men

POSSIBILITIES FOR ONE-ARMED MEN

Possible jobs for one-armed men are only found in the Exhibiting Branch.

Salesman	Electrician (may be)
Advertiser	Doorkeeper
Clerical worker	Usher
Booker	Cashier
Manager	Porter

WORKING CONDITIONS

1. Race. All races are taken except negroes.
2. Unions. The industry is not unionized but there are unions inside of it, such as machinists, carpenters, etc.
3. Wages. The wages range in the machine manufacture from \$21 to \$51 a week. In the laboratories for the most unskilled work, \$18 up to \$50 and \$75. In the producing from \$25 a week up to \$200 a week, which is the salary several of the artistic color-effect men are receiving.

ADVANTAGES FOR CRIPPLES

1. The industry is growing.
2. There are unlimited jobs cripples can do.
3. It is one of the trades that will be taught and can be learned. Some parts of the work require a month's intensive training, some require six months and more.
4. The salaries are exceptionally high.
5. The employers are willing to help and take cripples.

DISADVANTAGES FOR CRIPPLES

1. The work in connection with this industry offering disadvantage is in the manufacture of the projecting machine itself. It is heavy, very skilled work, and rather dangerous.
2. There are very few jobs for arm cripples.
3. It is quite impossible for a cripple to be a camera man or the man who takes the pictures as these men have to be in all sorts of hazardous positions.

